

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's full Name: Everett White Examiner #: 67057 Date: 6/03/2002
 Art Unit: 1623 Phone Number 308-4621 Serial Number: 09/743.826
 Mail Box: CM1-8B19 and Bldg/Room Location: CM1-7B13 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, key words, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: See Bib Data Sheet

Inventors (please provide full names): See Bib Data Sheet

Earliest priority Filing Date: See Bib Data Sheet

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search the process for the oxidation a starch in Claims 1-6, the oxidized starch products of Claims 7 and 8, the binder of Claim 10, the adhesive of Claim 11, the protective colloid of Claim 12, the coating of glass fibers in warp yarn sizing of Claim 13, and the food additive of Claim 14. A copy of the claims and abstract is provided.

The Bib Data Sheet which discloses the inventor names, title of the invention, and the earliest priority filing date is also provided.

Point of Contact:
 Thomas G. Larson, Ph.D.
 703-308-7309
 CM1, Rm. 6 B 01

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Searcher: <u>Thomas Larson</u>	NA Sequence (#) _____	STN _____
Searcher Phone #: <u>8-7309</u>	AA Sequence (#) _____	Dialog _____
Searcher Location: <u>6B01</u>	Structure (#) _____	Questel/Orbit _____
Date Searcher Picked Up: <u>6/7/02</u>	Bibliographic _____	Dr. Link _____
Date Completed: <u>6/20/02</u>	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: _____	Fulltext _____	Sequence Systems _____
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=> FIL PASCAL

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FILE COVERS 1984 TO DATE.

=> D QUE L4

L1 (64) SEA FILE=PASCAL ABB=ON PLU=ON (STARCH OR AMYLOPECTIN) (3A)
OXIDI?
L2 (37) SEA FILE=PASCAL ABB=ON PLU=ON (LITHIUM OR POTASSIUM OR
RUBIDIUM OR CESIUM OR ALKALI OR IA) (3A) (HYPOCHLORITE OR HYPO
CHLORITE)
L3 (1422) SEA FILE=PASCAL ABB=ON PLU=ON LICLO OR KCLO OR RBCLO OR
CSCLO
L4 0 SEA FILE=PASCAL ABB=ON PLU=ON L1 AND (L2 OR L3)

=> D QUE L8

L5 (64) SEA FILE=PASCAL ABB=ON PLU=ON (STARCH OR AMYLOPECTIN) (3A)
OXIDI?
L6 (1807) SEA FILE=PASCAL ABB=ON PLU=ON SODIUM (2A) (HYPOCHLORITE OR
HYPO CHLORITE) OR NACLO
L7 (10) SEA FILE=PASCAL ABB=ON PLU=ON L5 AND L6
L8 6 SEA FILE=PASCAL ABB=ON PLU=ON L7 NOT (METAL ION OR DIVALENT
METAL OR ACRYLAMIDE OR METHYL METHACRYLATE POLYMER)/CT

=> FIL JICST-EPLUS

FILE 'JICST-EPLUS' ENTERED AT 14:02:32 ON 20 JUN 2002

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FILE COVERS 1985 TO 17 JUN 2002 (20020617/ED)

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TERM (/CT) THESAURUS RELOAD.

=> D QUE L12

L9 (70) SEA FILE=JICST-EPLUS ABB=ON PLU=ON (STARCH OR AMYLOPECTIN) (3A)
) OXIDI?
L10 (15) SEA FILE=JICST-EPLUS ABB=ON PLU=ON (LITHIUM OR POTASSIUM OR
RUBIDIUM OR CESIUM OR ALKALI OR IA) (3A) (HYPOCHLORITE OR HYPO
CHLORITE)
L11 (5) SEA FILE=JICST-EPLUS ABB=ON PLU=ON LICLO OR KCLO OR RBCLO OR
CSCLO
L12 0 SEA FILE=JICST-EPLUS ABB=ON PLU=ON L9 AND (L10 OR L11)

=> D QUE L15

L13 (70) SEA FILE=JICST-EPLUS ABB=ON PLU=ON (STARCH OR AMYLOPECTIN) (3A)
) OXIDI?
L14 (500) SEA FILE=JICST-EPLUS ABB=ON PLU=ON SODIUM (2A) (HYPOCHLORITE
OR HYPO CHLORITE) OR NACLO
L15 1 SEA FILE=JICST-EPLUS ABB=ON PLU=ON L13 AND L14

=> FIL BIOSIS

FILE 'BIOSIS' ENTERED AT 14:03:07 ON 20 JUN 2002
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FILE COVERS 1969 TO DATE.

CAS REGISTRY NUMBERS AND CHEMICAL NAMES (CNS) PRESENT
FROM JANUARY 1969 TO DATE.

RECORDS LAST ADDED: 19 June 2002 (20020619/ED)

=> D QUE L19

L16 (107) SEA FILE=BIOSIS ABB=ON PLU=ON (STARCH OR AMYLOPECTIN) (3A)
OXIDI?
L17 (53) SEA FILE=BIOSIS ABB=ON PLU=ON (LITHIUM OR POTASSIUM OR
RUBIDIUM OR CESIUM OR ALKALI OR IA) (3A) (HYPOCHLORITE OR HYPO
CHLORITE)
L18 (47) SEA FILE=BIOSIS ABB=ON PLU=ON LICLO OR KCLO OR RBCLO OR
CSCLO
L19 0 SEA FILE=BIOSIS ABB=ON PLU=ON L16 AND (L17 OR L18)

=> D QUE L22

L20 (107) SEA FILE=BIOSIS ABB=ON PLU=ON (STARCH OR AMYLOPECTIN) (3A)
OXIDI?
L21 (1995) SEA FILE=BIOSIS ABB=ON PLU=ON SODIUM (2A) (HYPOCHLORITE OR
HYPO CHLORITE) OR NACLO
L22 13 SEA FILE=BIOSIS ABB=ON PLU=ON L20 AND L21

=> FIL PAPERCHEM2

FILE 'PAPERCHEM2' ENTERED AT 14:03:36 ON 20 JUN 2002
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FILE COVERS 1967 TO 17 Jun 2002 (20020617/ED)

=> D QUE L26

L23 (866) SEA FILE=PAPERCHEM2 ABB=ON PLU=ON (STARCH OR AMYLOPECTIN) (3A)
OXIDI?
L24 (12) SEA FILE=PAPERCHEM2 ABB=ON PLU=ON (LITHIUM OR POTASSIUM OR
RUBIDIUM OR CESIUM OR ALKALI OR IA) (3A) (HYPOCHLORITE OR HYPO
CHLORITE)
L25 (1) SEA FILE=PAPERCHEM2 ABB=ON PLU=ON LICLO OR KCLO OR RBCLO OR
CSCLO
L26 0 SEA FILE=PAPERCHEM2 ABB=ON PLU=ON L23 AND (L24 OR L25)

=> D QUE L30

L27 (866) SEA FILE=PAPERCHEM2 ABB=ON PLU=ON (STARCH OR AMYLOPECTIN) (3A)
OXIDI?
L28 (625) SEA FILE=PAPERCHEM2 ABB=ON PLU=ON SODIUM (2A) (HYPOCHLORITE
OR HYPO CHLORITE) OR NACLO
L29 (21) SEA FILE=PAPERCHEM2 ABB=ON PLU=ON L27 AND L28
L30 16 SEA FILE=PAPERCHEM2 ABB=ON PLU=ON L29 AND STARCH DERIVATIVES/
CT

=> D QUE L37

L31 (11158)SEA FILE=PAPERCHEM2 ABB=ON PLU=ON ALKALI METAL COMPOUNDS/CT
L32 (1389)SEA FILE=PAPERCHEM2 ABB=ON PLU=ON HYPOCHLORITES/CT
L33 (556)SEA FILE=PAPERCHEM2 ABB=ON PLU=ON L31 AND L32
L34 (366)SEA FILE=PAPERCHEM2 ABB=ON PLU=ON OXYSTARCH/CT
L35 (17)SEA FILE=PAPERCHEM2 ABB=ON PLU=ON L33 AND L34
L36 (15)SEA FILE=PAPERCHEM2 ABB=ON PLU=ON L35 AND STARCH/CT
L37 15 SEA FILE=PAPERCHEM2 ABB=ON PLU=ON L36 AND STARCH DERIVATIVES/
CT

=> S L30 OR L37
L118 19 L30 OR L37

=> FIL TEXTILETECH
FILE 'TEXTILETECH' ENTERED AT 14:04:24 ON 20 JUN 2002
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FILE LAST UPDATED: 05 JUN 2002 <20020605/UP>
FILE COVERS 1978 TO DATE.

=> D QUE L41
L38 (14)SEA FILE=TEXTILETECH ABB=ON PLU=ON (STARCH OR AMYLOPECTIN) (3A
) OXIDI?
L39 (16)SEA FILE=TEXTILETECH ABB=ON PLU=ON (LITHIUM OR POTASSIUM OR
RUBIDIUM OR CESIUM OR ALKALI OR IA) (3A) (HYPOCHLORITE OR HYPO
CHLORITE)
L40 (6)SEA FILE=TEXTILETECH ABB=ON PLU=ON LICLO OR KCLO OR RBCLO OR
CSCLO
L41 0 SEA FILE=TEXTILETECH ABB=ON PLU=ON L38 AND (L39 OR L40)

=> D QUE L44
L42 (14)SEA FILE=TEXTILETECH ABB=ON PLU=ON (STARCH OR AMYLOPECTIN) (3A
) OXIDI?
L43 (187)SEA FILE=TEXTILETECH ABB=ON PLU=ON SODIUM (2A) (HYPOCHLORITE
OR HYPO CHLORITE) OR NACLO
L44 1 SEA FILE=TEXTILETECH ABB=ON PLU=ON L42 AND L43

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FILE COVERS 1907 - 20 Jun 2002 VOL 136 ISS 25
FILE LAST UPDATED: 18 Jun 2002 (20020618/ED)

This file contains CAS Registry Numbers for easy and accurate

Searched by Thom Larson, STIC, 308-7309

substance identification.

CAS roles have been modified effective December 16, 2001. Please check your SDI profiles to see if they need to be revised. For information on CAS roles, enter HELP ROLES at an arrow prompt or use the CAS Roles thesaurus (/RL field) in this file.

=> D QUE L55

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L45 (      2574)SEA FILE=HCAPLUS ABB=ON  PLU=ON  STARCH (3A) OXIDI?
L46 (      50874)SEA FILE=HCAPLUS ABB=ON  PLU=ON  STARCH+NT,PFT/CT
L47 (          1)SEA FILE=REGISTRY ABB=ON  PLU=ON  STARCH/CN
L48 (      49684)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L47
L49 (      1449)SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L46 OR L48) (L) OXIDI?
L50 (          5)SEA FILE=REGISTRY ABB=ON  PLU=ON  (LITHIUM HYPOCHLORITE OR
      POTASSIUM HYPOCHLORITE OR RUBIDIUM HYPOCHLORITE OR STRONTIUM
      HYPOCHLORITE OR CESIUM HYPOCHLORITE)/CN
L51 (      422)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L50
L52 (      212)SEA FILE=HCAPLUS ABB=ON  PLU=ON  LICLO OR KCLO OR RBCLO OR
      SRCLO OR CSCLO
L53 (      578)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L51 OR L52
L54 (      2825)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L45 OR L49
L55          0 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L53 AND L54
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=> D QUE L63

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L56 (      50874)SEA FILE=HCAPLUS ABB=ON  PLU=ON  STARCH+NT,PFT/CT
L57 (          1)SEA FILE=REGISTRY ABB=ON  PLU=ON  STARCH/CN
L58 (      49684)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L57
L59 (      1449)SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L56 OR L58) (L) OXIDI?
L60 (      359643)SEA FILE=HCAPLUS ABB=ON  PLU=ON  ALKALI METALS+NT,PFT/CT
L61 (      10891)SEA FILE=HCAPLUS ABB=ON  PLU=ON  HYPOCHLORITES+NT/CT
L62 (          77)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L60 AND L61
L63          0 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L59 AND L62
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=> D QUE L72

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L64 (      2574)SEA FILE=HCAPLUS ABB=ON  PLU=ON  STARCH (3A) OXIDI?
L65 (      50874)SEA FILE=HCAPLUS ABB=ON  PLU=ON  STARCH+NT,PFT/CT
L66 (          1)SEA FILE=REGISTRY ABB=ON  PLU=ON  STARCH/CN
L67 (      49684)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L66
L68 (      1449)SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L65 OR L67) (L) OXIDI?
L69 (      2825)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L64 OR L68
L70 (      359643)SEA FILE=HCAPLUS ABB=ON  PLU=ON  ALKALI METALS+NT,PFT/CT
L71 (      7060)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L70 (L) CAT/RL
L72          0 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L71 AND L69
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=> D QUE L78

```
L73 (      50874)SEA FILE=HCAPLUS ABB=ON  PLU=ON  STARCH+NT,PFT/CT
L74 (      7869)SEA FILE=HCAPLUS ABB=ON  PLU=ON  SODIUM HYPOCHLORITE/CT
L75 (      639)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L73 (L) RACT/RL
L76 (      494)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L74 (L) RACT/RL
L77 (      12)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L75 AND L76
L78          9 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L77 NOT (TEMPO OR DIALY?)/OBI
```

=> D QUE L87

```
L79 (      50874)SEA FILE=HCAPLUS ABB=ON  PLU=ON  STARCH+NT,PFT/CT
L80 (      7869)SEA FILE=HCAPLUS ABB=ON  PLU=ON  SODIUM HYPOCHLORITE/CT
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L81 (3454)SEA FILE=HCAPLUS ABB=ON PLU=ON L79 (L) (RCT OR RACT)/RL
 L82 (1505)SEA FILE=HCAPLUS ABB=ON PLU=ON L80 (L) (RCT OR RACT)/RL
 L83 (24)SEA FILE=HCAPLUS ABB=ON PLU=ON L81 AND L82
 L84 (1449)SEA FILE=HCAPLUS ABB=ON PLU=ON L79 (L) OXIDI?
 L85 (204)SEA FILE=HCAPLUS ABB=ON PLU=ON L84 (L) PREP/RL
 L86 (3)SEA FILE=HCAPLUS ABB=ON PLU=ON L83 AND L85
 L87 1 SEA FILE=HCAPLUS ABB=ON PLU=ON L86 AND ADHESIVE/OBI

 => D QUE L99
 L88 (50874)SEA FILE=HCAPLUS ABB=ON PLU=ON STARCH+NT,PFT/CT
 L89 (1)SEA FILE=REGISTRY ABB=ON PLU=ON STARCH/CN
 L90 (49684)SEA FILE=HCAPLUS ABB=ON PLU=ON L89
 L91 (3454)SEA FILE=HCAPLUS ABB=ON PLU=ON L88 (L) (RCT OR RACT)/RL
 L92 (5)SEA FILE=REGISTRY ABB=ON PLU=ON (LITHIUM HYPOCHLORITE OR
 POTASSIUM HYPOCHLORITE OR RUBIDIUM HYPOCHLORITE OR STRONTIUM
 HYPOCHLORITE OR CESIUM HYPOCHLORITE)/CN
 L93 (422)SEA FILE=HCAPLUS ABB=ON PLU=ON L92
 L94 (212)SEA FILE=HCAPLUS ABB=ON PLU=ON LICLO OR KCLO OR RBCLO OR
 SRCLO OR CSCLO
 L95 (578)SEA FILE=HCAPLUS ABB=ON PLU=ON L93 OR L94
 L96 (315)SEA FILE=HCAPLUS ABB=ON PLU=ON (LITHIUM HYPOCHLORITE OR
 POTASSIUM HYPOCHLORITE OR RUBIDIUM HYPOCHLORITE OR STRONTIUM
 HYPOCHLORITE OR CESIUM HYPOCHLORITE)/OBI
 L97 (0)SEA FILE=HCAPLUS ABB=ON PLU=ON L91 AND L96
 L98 (4)SEA FILE=HCAPLUS ABB=ON PLU=ON (L97 OR L95) AND (L88 OR L90)

 L99 0 SEA FILE=HCAPLUS ABB=ON PLU=ON L98 AND OXIDI?

=> D QUE L109
 L100 (50874)SEA FILE=HCAPLUS ABB=ON PLU=ON STARCH+NT,PFT/CT
 L101 (1)SEA FILE=REGISTRY ABB=ON PLU=ON STARCH/CN
 L102 (49684)SEA FILE=HCAPLUS ABB=ON PLU=ON L101
 L103 (1449)SEA FILE=HCAPLUS ABB=ON PLU=ON (L100 OR L102) (L) OXIDI?
 L104 (7869)SEA FILE=HCAPLUS ABB=ON PLU=ON SODIUM HYPOCHLORITE/CT
 L105 (3454)SEA FILE=HCAPLUS ABB=ON PLU=ON L100 (L) (RCT OR RACT)/RL
 L106 (1505)SEA FILE=HCAPLUS ABB=ON PLU=ON L104 (L) (RCT OR RACT)/RL
 L107 (24)SEA FILE=HCAPLUS ABB=ON PLU=ON L105 AND L106
 L108 (9)SEA FILE=HCAPLUS ABB=ON PLU=ON L107 AND L103
 L109 8 SEA FILE=HCAPLUS ABB=ON PLU=ON L108 NOT TEMPO/OBI

=> S L78 OR L87 OR L109
 L119 14 L78 OR L87 OR L109

=> FIL WPIDS
 FILE 'WPIDS' ENTERED AT 14:08:00 ON 20 JUN 2002
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FILE LAST UPDATED: 18 JUN 2002 <20020618/UP>
 MOST RECENT DERWENT UPDATE 200238 <200238/DW>
 DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

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=> D QUE L114

L110(612)SEA FILE=WPIDS ABB=ON PLU=ON (STARCH OR AMYLOPECTIN) (3A)
OXIDI?

L111(32)SEA FILE=WPIDS ABB=ON PLU=ON LICLO OR KCLO OR RBCLO OR SRCLO
OR CSCLO

L112(170)SEA FILE=WPIDS ABB=ON PLU=ON (LITHIUM OR POTASSIUM OR
RUBIDIUM OR STRONTIUM OR CESIUM) (W) HYPOCHLORITE

L113(200)SEA FILE=WPIDS ABB=ON PLU=ON L111 OR L112

L114 0 SEA FILE=WPIDS ABB=ON PLU=ON L110 AND L113

=> D QUE L117

L115(612)SEA FILE=WPIDS ABB=ON PLU=ON (STARCH OR AMYLOPECTIN) (3A)
OXIDI?

L116(2267)SEA FILE=WPIDS ABB=ON PLU=ON SODIUM HYPOCHLORITE OR NACLO

L117 11 SEA FILE=WPIDS ABB=ON PLU=ON L115 AND L116

=> DUP REM L8 L15 L22 L118 L44 L119 L117

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PROCESSING COMPLETED FOR L15

PROCESSING COMPLETED FOR L22

PROCESSING COMPLETED FOR L118

PROCESSING COMPLETED FOR L44
PROCESSING COMPLETED FOR L119
PROCESSING COMPLETED FOR L117
L120 58 DUP REM L8 L15 L22 L118 L44 L119 L117 (7 DUPLICATES REMOVED)

=> D IBIB AB 2-58

L120 ANSWER 1 OF 58 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2001:372165 HCAPLUS
DOCUMENT NUMBER: 134:368509
TITLE: Materials for reactors in contact with hypochlorite
salts and manufacture of carboxylated polysaccharides
using the reactors
INVENTOR(S): Takahashi, Toru; Kanzaki, Toshiaki
PATENT ASSIGNEE(S): Mitsubishi Gas Chemical Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001139601	A2	20010522	JP 1999-327829	19991118

AB Ni-rich austenite stainless steel is used for reactors, where carboxylated polysaccharides are manufd. by oxidn. in the presence of hypochlorite salts and Ru compds. Thus, immersion of a SUS 317J4L (Ni-rich austenite stainless steel) test piece in an oxidn. reaction soln. of corn starch contg. NaClO and Ru chloride catalyst showed reduced corrosion.

L120 ANSWER 2 OF 58 WPIDS (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: 2002-163010 [21] WPIDS
DOC. NO. CPI: C2002-050213
TITLE: Production of **oxidized starch**, useful
in papermaking or as a textile size, comprises reacting
uncooked aqueous starch slurry with oxidant and caustic
material.
DERWENT CLASS: A11 D13 F09 G03
INVENTOR(S): MCCLAIN, J A
PATENT ASSIGNEE(S): (ARCH) ARCHER-DANIELS MIDLAND CORP
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
US 6322632	B1	20011127	(200221)*		4

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 6322632	B1	US 2000-506746	20000218

PRIORITY APPLN. INFO: US 2000-506746 20000218
AB US 6322632 B UPAB: 20020403
NOVELTY - **Oxidized starch** is produced by reacting an

uncooked aqueous starch slurry with a mixture comprising oxidant and caustic material. The mixture has a hydroxide concentration greater than 5%.

USE - For producing **oxidized starch** that is useful in papermaking, or as textile size.

ADVANTAGE - The method produces **oxidized starch** which has reduced tendency to form amylose crystals after cooking, and is efficient and cost effective. The starch has more consistent viscosity than starch produced by other methods.

Dwg.0/0

L120 ANSWER 3 OF 58 WPIDS (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: 2002-153351 [20] WPIDS
DOC. NO. CPI: C2002-047832
TITLE: Degradable polymer film containing **oxidized**
potato **starch** and its production.
DERWENT CLASS: A18
INVENTOR(S): KIM, M R
PATENT ASSIGNEE(S): (KIMM-I) KIM M R
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
KR 2001076940	A	20010817	(200220)*		1

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
KR 2001076940	A	KR 2000-4380	20000128

PRIORITY APPLN. INFO: KR 2000-4380 20000128

AB KR2001076940 A UPAB: 20020402

NOVELTY - Provided is a degradable polymer film containing **oxidized potato starch**, which is excellent in tensile strength, elongation rate, and strain energy and can minimize environmental pollution by fast thermal decomposition and biodegradation.

DETAILED DESCRIPTION - The degradable polymer film is produced by a process comprising the steps of: **oxidizing** the potato **starch** by a **sodium hypochlorite** (NaOCl) solution containing 0.1-5.0 active Cl/g **starch**; mixing the **oxidized potato starch** and a polymer such as polyethylene, polypropylene, or polystyrene in the same amount and the balance being a pro-oxidant to prepare a master batch; extrusion-molding the master batch containing 1-20 weight of the **oxidized potato starch** at a barrel temperature of 140-160 deg. C and a screw velocity of 15-25rpm to form chips; extrusion-molding the chips at a barrel temperature of 110-160 deg. C and a screw velocity of 45-65 rpm to form a cast film.

Dwg.1/10

L120 ANSWER 4 OF 58 WPIDS (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: 2001-413019 [44] WPIDS
CROSS REFERENCE: 2001-246708 [17]
DOC. NO. CPI: C2001-125330
TITLE: Preparation of starch polysaccharide aldehyde derivative useful as, e.g., wet additive in papermaking, involves **oxidizing starch** polysaccharide in

aqueous solution with oxidant and nitroxyl radical at a predetermined condition.

DERWENT CLASS: A11 A97 F09
INVENTOR(S): CIMECIOGLU, A L; THOMAIDES, J S
PATENT ASSIGNEE(S): (NATT) NAT STARCH & CHEM INVESTMENT HOLDING COR
COUNTRY COUNT: 3
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
JP 2001122904	A	20010508	(200144)*		42
CN 1298885	A	20010613	(200158)		
NZ 506386	A	20011221	(200210)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 2001122904	A	JP 2000-247623	20000817
CN 1298885	A	CN 2000-128607	20000816
NZ 506386	A	NZ 2000-506386	20000817

PRIORITY APPLN. INFO: US 2000-636069 20000810; US 1999-375931
19990817

AB JP2001122904 A UPAB: 20020213

NOVELTY - A starch polysaccharide aldehyde derivative is prepared by **oxidizing starch** polysaccharide in an aqueous solution with an oxidant and a nitroxyl radical. The reaction is carried out at or below 15 deg. C and a pH of 8.0-10.5.

DETAILED DESCRIPTION - Preparation of starch polysaccharide aldehyde derivatives comprises **oxidizing starch** polysaccharide in an aqueous solution with an oxidant having an equivalent oxidizing power of 14.18 g active chlorine per mole of polysaccharide anhydrosugar unit (ASU) and a predetermined amount of nitroxyl radical. The reaction is carried out at or less than 15 deg. C and at a pH of 8.0-10.5. The resulting product has up to 15 mole% of C-6 aldehyde per mole of polysaccharide ASU and minimal carboxylic acid content. An INDEPENDENT CLAIM is also included for an amphoteric starch polysaccharide aldehyde having 0.5-25 mole% cationic groups based on the moles of polysaccharide ASU, 1-15 mole% C-6 aldehyde content based on the moles of polysaccharide ASU and 0-20 mole% carboxylic acid content based on the moles of polysaccharide ASU.

USE - For preparing polysaccharide aldehyde derivatives useful as wet, temporary wet and dry strength additives in papermaking (claimed).

ADVANTAGE - The invention provides derivatives with maximum effective aldehyde and minimal carboxylic acid content.

Dwg.0/0

L120 ANSWER 5 OF 58 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2001:667031 HCAPLUS

DOCUMENT NUMBER: 136:218525

TITLE: Production of new corn starch **adhesive**

AUTHOR(S): Song, Chang-chun; Wang, Xiao-peng

CORPORATE SOURCE: Anhui Technical Teachers College, Fengyang, 233100, Peop. Rep. China

SOURCE: Huaxue Yu Nianhe (2001), (4), 181-182

CODEN: HYZHEN; ISSN: 1001-0017

PUBLISHER: Huaxue Yu Nianhe Bianji Weiyuanhui

DOCUMENT TYPE: Journal

LANGUAGE: Chinese
AB A new corn starch adhesive is prep'd. by oxidn. of starch with sodium hypochlorite. The degree of oxidn. is controlled by the amt. of oxidant, reaction temp., reaction time, and viscosity. It has good original adhesion strength and stable viscosity.

L120 ANSWER 6 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

ACCESSION NUMBER: 2001:396028 BIOSIS

DOCUMENT NUMBER: PREV200100396028

TITLE: Adsorption of divalent metal ions by succinylated and **oxidized corn starches**.

AUTHOR(S): Kweon, D.-K.; Choi, J.-K.; Kim, E.-K.; Lim, S.-T. (1)

CORPORATE SOURCE: (1) Graduate School of Biotechnology, Korea University, Seoul, 136-701: limst@mail.korea.ac.kr South Korea

SOURCE: Carbohydrate Polymers, (October, 2001) Vol. 46, No. 2, pp. 171-177. print.

ISSN: 0144-8617.

DOCUMENT TYPE: Article

LANGUAGE: English

SUMMARY LANGUAGE: English

AB Corn starch was succinylated (degree of substitution, DS 0.03-0.07) with succinic anhydride in an aqueous alkaline medium (pH 10), or oxidized (DS 0.13-0.29) with **sodium hypochlorite** in the presence of 2,2,6,6-tetramethyl-1-piperidinyloxy (TEMPO) and sodium bromide, and the adsorption properties of the starches for Cu²⁺, Zn²⁺, Pb²⁺, and Cd²⁺ in their aqueous salt solutions were investigated under various conditions. Regardless of the metal type, the adsorption capacity of both ionic starches reached a state of equilibrium within 5-10 min for starch dispersion in metal solutions. The succinylated starch was most effective in binding Pb²⁺, whereas the **oxidized starch** was effective for Cu²⁺ among the tested metal ions. Cd²⁺ was least effective in binding either to the succinylated or to the **oxidized starch**. However, the **oxidized starch** was partially soluble in aqueous solutions, and thus the starch dissolution resulted in reduced metal-adsorption efficiency. The metal-adsorption of both ionic starches followed the Langmuir adsorption isotherm. The maximum adsorption capacity (Q) and Langmuir constant (b) for a succinylated starch (DS 0.07) for Pb²⁺ were 0.534 mmol g⁻¹ and 2.276X10⁻³ ppm⁻¹, respectively. These values were higher than those of Cu²⁺, Zn²⁺, and Cd²⁺. The Q and b values for an **oxidized starch** (DS 0.29) for Cu²⁺ were significantly higher (1.245 mmol g⁻¹ and 14.98X10⁻³ ppm⁻¹, respectively) than those of Pb²⁺, Zn²⁺, and Cd²⁺. Therefore, among the tested ions, Pb²⁺ was adsorbed most effectively by the succinylated starch, and Cu²⁺ by the **oxidized starch**.

L120 ANSWER 7 OF 58 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2000:881088 HCAPLUS

DOCUMENT NUMBER: 134:44078

TITLE: Process for regenerating periodic acid

INVENTOR(S): Besemer, Arie Cornelis; Jetten, Jan Mattijs

PATENT ASSIGNEE(S): Sca Hygiene Products Zeist B.V., Neth.

SOURCE: PCT Int. Appl., 10 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2000075070 A1 20001214 WO 2000-NL386 20000607
 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR,
 CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU,
 ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU,
 LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE,
 SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA,
 ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,
 DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ,
 CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
 BR 2000011371 A 20020226 BR 2000-11371 20000607
 EP 1189834 A1 20020327 EP 2000-939190 20000607
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO

PRIORITY APPLN. INFO.: EP 1999-201808 A 19990607
 WO 2000-NL386 W 20000607

AB Periodic acid is regenerated and recovered from a spent iodate soln. by reaction with at least an equimolar amt. of a hypohalite in the presence of a water-miscible org. solvent, K⁺ or divalent cations (esp. Ca²⁺, Mg²⁺). The periodic acid is suitable for oxidn. of carbohydrates to dialdehyde carbohydrates, e.g., starch to dialdehyde starch, a wet strength additive for paper. Dialdehyde starch can be further oxidized to dicarboxy starch, a sequestering agent.

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L120 ANSWER 8 OF 58 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2000:19334 HCAPLUS

DOCUMENT NUMBER: 132:51386

TITLE: Carboxypolysaccharides and production methods therefor

INVENTOR(S): Kanzaki, Toshiaki; Wakabayashi, Hidechika; Takahashi, Toru; Sakaiya, Hisashi

PATENT ASSIGNEE(S): Mitsubishi Gas Chemical Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000001503	A2	20000107	JP 1998-168631	19980616

AB Polysaccharides are oxidized with Ru compds. and oxidizing agents in the presence of additives, and after the reaction, Ru is oxidized to a higher oxidn. state and extd. and sepd. with water-insol. org. solvents. Thus, corn starch was treated with Ru chloride, Na₂SO₄, and NaOCl to prep. tricarbxy starch Na salt with the removal of 99.7% Ru. The reaction liq. was mixed with NaOCl and heptane, and Ru oxide was sepd.

L120 ANSWER 9 OF 58 WPIDS (C) 2002 THOMSON DERWENT

ACCESSION NUMBER: 2000-205455 [18] WPIDS

DOC. NO. CPI: C2000-063296

TITLE: Oxidation of starch for use e.g., as binder in paper coatings, involves subjecting an **oxidized starch** to an alkaline treatment at pH higher than 10.

DERWENT CLASS: A11 D13 F06 F09 G02 G03

INVENTOR(S): BROUWER, P H; KESSELMANS, R P W; TER VEER, B C A; WIELEMA, T A

PATENT ASSIGNEE(S): (CVPA) COOP VERKOOP PROD VAN AARDAPP AVEBE
 COUNTRY COUNT: 87
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2000006607	A1	20000210	(200018)*	EN	31
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW					
W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZA ZW					
AU 9951995	A	20000221	(200029)		
BR 9912634	A	20010424	(200128)		
EP 1109836	A1	20010627	(200137)	EN	
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI					
CN 1317016	A	20011010	(200207)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2000006607	A1	WO 1999-NL484	19990728
AU 9951995	A	AU 1999-51995	19990728
BR 9912634	A	BR 1999-12634	19990728
		WO 1999-NL484	19990728
EP 1109836	A1	EP 1999-937105	19990728
		WO 1999-NL484	19990728
CN 1317016	A	CN 1999-810481	19990728

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 9951995	A Based on	WO 200006607
BR 9912634	A Based on	WO 200006607
EP 1109836	A1 Based on	WO 200006607

PRIORITY APPLN. INFO: EP 1998-202593 19980731

AB WO 200006607 A UPAB: 20000412

NOVELTY - **Starch** is **oxidized** by treating a root or tuber starch comprising at least 95 wt.% amylopectin, based on dry substance of the starch, with an alkali metal hypochlorite and subjecting the resulting product to an alkaline treatment. The alkaline treatment comprises keeping the product at 20 - 50 deg. C for 15 minutes and at pH higher than 10.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for (A) an **oxidized starch** obtainable from the process; and (B) the use of the **oxidized starch**.

USE - The **oxidized starch** is used as a binder in paper coatings or surface sizings, as an adhesive, a protective colloid for stabilizing emulsions, in warp yarn sizing, as a coating of glass fibers, as a blanket adhesive, and in abrasive paper or in food products (all claimed).

ADVANTAGE - The oxidation process can be carried out in a shorter period of time and requires only small amounts of **oxidizing** agent. The **oxidized starch** obtained has an excellent stability of the viscosity and contains much smaller amounts of chlorine

compared to the conventional oxidation process.
Dwg.0/0

L120 ANSWER 10 OF 58 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1999:680139 HCAPLUS

DOCUMENT NUMBER: 131:300724

TITLE: Carboxypolysaccharides and manufacturing methods therefor

INVENTOR(S): Wakabayashi, Hidechika; Sano, Rieko

PATENT ASSIGNEE(S): Mitsubishi Gas Chemical Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11292901	A2	19991026	JP 1998-93451	19980406

AB Polysaccharides are oxidized in the presence of transition metal compds. and desalted by electrodialysis to prep. carboxypolysaccharides. Thus, corn starch was oxidized in the presence of Ru oxide and NaClO, treated with aq. NaOH, and electrodialyzed to give tricarboxystarch Na salt.

L120 ANSWER 11 OF 58 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1999:339480 HCAPLUS

DOCUMENT NUMBER: 131:6823

TITLE: Process for preparing carboxypolysaccharides

INVENTOR(S): Shimpo, Masafumi; Sakaitani, Hisashi; Wakabayashi, Hidechika; Kozaki, Toshiaki

PATENT ASSIGNEE(S): Mitsubishi Gas Chemical Company, Inc., Japan

SOURCE: Eur. Pat. Appl., 11 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 915102	A1	19990512	EP 1998-119903	19981021
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2000007703	A2	20000111	JP 1998-314664	19981105
US 6130328	A	20001010	US 1998-186465	19981105
PRIORITY APPLN. INFO.:			JP 1997-307470	A 19971110
			JP 1998-115176	A 19980424

OTHER SOURCE(S): MARPAT 131:6823

AB A polysaccharide is oxidized in the presence of a transition metal compd. and an oxidizing agent to prep. a carboxypolysaccharide, and the transition metal in the product is removed by a chelating agent. Thus, corn starch was treated with NaOCl, Ru chloride, and NaOH in water to give tricarboxystarch Na salt (I), and I was treated with Na di-Et dithiocarbamate to remove 92% Ru.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L120 ANSWER 12 OF 58 WPIDS (C) 2002 THOMSON DERWENT

ACCESSION NUMBER: 1999-573816 [49] WPIDS

DOC. NO. CPI: C1999-167543
 TITLE: An environmentally-friendly aqueous architectural coating composition containing modified starch.
 DERWENT CLASS: A11 A82 G02
 INVENTOR(S): HORLEY, S; WHEELER, S A; HORLEY, S M
 PATENT ASSIGNEE(S): (ICIL) IMPERIAL CHEM IND PLC
 COUNTRY COUNT: 85
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
EP 949307	A1	19991013	(199949)*	EN	12
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI					
WO 9952985	A1	19991021	(199952)	EN	
RW: EA GH GM KE LS MW OA SD SL SZ UG ZW					
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZA ZW					
AU 9931481	A	19991101	(200013)		
BR 9909475	A	20001219	(200103)		
EP 949307	B1	20011010	(200167)	EN	
R: AT BE CH DE DK ES FI FR GB GR IE IT LI NL PT SE					
DE 69900338	E	20011115	(200176)		
US 6384132	B1	20020507	(200235)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 949307	A1	EP 1999-106611	19990331
WO 9952985	A1	WO 1999-EP2185	19990331
AU 9931481	A	AU 1999-31481	19990331
BR 9909475	A	BR 1999-9475	19990331
		WO 1999-EP2185	19990331
EP 949307	B1	EP 1999-106611	19990331
DE 69900338	E	DE 1999-600338	19990331
		EP 1999-106611	19990331
US 6384132	B1	US 1999-286312	19990405

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 9931481	A Based on.	WO 9952985
BR 9909475	A Based on	WO 9952985
DE 69900338	E Based on	EP 949307

PRIORITY APPLN. INFO: GB 1998-7426 19980408

AB EP 949307 A UPAB: 19991124

NOVELTY - An environmentally-friendly aqueous architectural coating composition which includes film-forming binder polymer composed of modified starch chemically associated with chains of copolymerized monomers, at least 93 wt.% of which are selected from mono-ethylenically unsaturated monomers.

DETAILED DESCRIPTION - An environmentally-friendly aqueous architectural coating composition which includes film-forming binder polymer composed of modified starch chemically associated with chains of copolymerized monomers, at least 93 wt.% of which are selected from

mono-ethylenically unsaturated monomers, where:

a) the starch has been modified by the introduction of carboxylic acid or groups optionally converted to an inorganic salt,
b) up to 50 wt.% of the starch-containing binder polymer is provided by the modified starch and

c) not more than 7 mol.% of the copolymerized mono-ethylenically unsaturated monomers are derived from carboxylic acid monomers.

An INDEPENDENT CLAIM is also included for a process for making the described coating composition by:

a) modifying a starch by lightly oxidizing it to introduce carboxylic acid groups optionally converted to an inorganic salt,

b) adding free radical initiator to an aqueous dispersion of the modified starch and feeding the unsaturated monomers into the dispersion,

c) subjecting the dispersion to a temperature which causes polymerization of the monomers to produce chains of copolymerized monomers chemically associated with the modified starch, in turn creating the starch-containing film-forming binder,

d) mixing this binder with other components of the composition,

e) choosing the ratio of modified starch to unsaturated monomers so as to ensure that the weight of starch in the starch-containing binder does not exceed 50 wt.% of the weight of the starch-containing binder and choosing a ratio of monomers such that not more than 7 mol.% of the copolymerized monomers are derived from carboxylic acid monomers.

USE - This is for eg. water-resistant paints, varnishes or woodstains suitable for use at ambient temperature.

ADVANTAGE - Dependency on materials obtained from non-renewable resources such as petrochemicals is reduced. Smaller amounts of expensive co-monomers are needed. The coatings are water-resistant and can have thixotropic properties. They can be applied with a brush or pad.

Dwg.0/0

L120 ANSWER 13 OF 58 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1998:485445 HCAPLUS

DOCUMENT NUMBER: 129:137681

TITLE: Polycarboxylic acids (salts) derived from glucose-based polysaccharides and detergent compositions containing the acids (salts)

INVENTOR(S): Dannoue, Kukihiro; Morohara, Kiyoshi

PATENT ASSIGNEE(S): Lion Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10195102	A2	19980728	JP 1996-358627	19961230

AB Polysaccharides are oxidized to prep. builders showing good chelating effects from high contents of CO₂H. Thus, corn starch was oxidized by NaOCl in the presence of RuCl₃ to give a polycarboxylic acid having Ca ion-chelating ability 420 mg/g, which was mixed with Na C10-14 linear alkylbenzenesulfonate, C12-13 alc. ethoxylate, Na₂CO₃, and additives to give a granular detergent showing good detergency.

L120 ANSWER 14 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

ACCESSION NUMBER: 1998:400646 BIOSIS

DOCUMENT NUMBER: PREV199800400646

TITLE: Structural characterization of **oxidized potato starch**.
AUTHOR(S): Zhu, Qin; Sjöholm, Rainer; Nurmi, Kari; Bertoft, Eric (1)
CORPORATE SOURCE: (1) Dep. Biochem. Pharm., Åbo Akademi Univ., BioCity, P.O. Box 66, FIN-20521 Turku Finland
SOURCE: Carbohydrate Research, (June, 1998) Vol. 309, No. 2, pp. 213-218.
ISSN: 0008-6215.
DOCUMENT TYPE: Article
LANGUAGE: English
AB **Sodium hypochlorite** oxidized (HO) and hydrogen peroxide **oxidized** (PO) potato **starches** were fractionated on an ion-exchange chromatography column of DEAE-Sepharose. Bound dextrans represented the major fraction and possessed larger d.p.-values than the minor fraction of unbound dextrans. The HO- and PO-starches were also debranched prior to separation on the ion-exchanger. The proportion of bound chains was much larger in the HO-starch. In both starches only 63% of the bound chains were resistant to beta-amylolysis, suggesting that the non-resistant chains possessed substitutions at the reducing end. The relative molar concentration of modified chains were 34 and 20% in the HO- and PO-starch, respectively. ¹³C NMR spectra of fractions obtained from the HO-starch showed that carboxylic groups were concentrated on the bound chains.

L120 ANSWER 15 OF 58 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1997:803718 HCAPLUS
DOCUMENT NUMBER: 128:49752
TITLE: Hest-stable high-viscosity starches
INVENTOR(S): Kettlitz, Bernd Wolfgang; Coppin, Jozef Victor Jean Marie
PATENT ASSIGNEE(S): Cerestar Holding B. V., Neth.
SOURCE: Eur. Pat. Appl., 13 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 811633	A2	19971210	EP 1997-303754	19970603
EP 811633	A3	19980610		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
CA 2206936	AA	19971204	CA 1997-2206936	19970602
JP 10053601	A2	19980224	JP 1997-145618	19970603
US 6235894	B1	20010522	US 1997-868584	19970604

PRIORITY APPLN. INFO.: GB 1996-11595 A 19960604

AB The starches are obtained by reacting high-viscosity starch with activated Cl under alk. conditions. The starches are used to replace viscosity stable starches obtained by conventional chem. cross-bonding. Thus, treatment of waxy maize starch with NaOCl in water (pH = 10.5) gave a product having high and stable heat viscosity.

L120 ANSWER 16 OF 58 PASCAL COPYRIGHT 2002 INIST-CNRS. ALL RIGHTS RESERVED.
DUPLICATE

ACCESSION NUMBER: 1997-0381293 PASCAL
COPYRIGHT NOTICE: Copyright .COPYRG. 1997 INIST-CNRS. All rights reserved.
TITLE (IN ENGLISH): Preparation and characterization of carboxymethyl

starch (CMS) products and their utilization in textile printing

AUTHOR: RAGHEB A. A.; EL-SAYIAD H. S.; HEBEISH A.

CORPORATE SOURCE: Textile Division. National Research Centre, Dokki, Cairo, Egypt

SOURCE: Staerke, (1997), 49(6), 238-245, 9 refs.
ISSN: 0038-9056 CODEN: STRKA6

DOCUMENT TYPE: Journal; (research paper)

BIBLIOGRAPHIC LEVEL: Analytic

COUNTRY: Germany, Federal Republic of

LANGUAGE: English

AVAILABILITY: INIST-5812, 354000062078990040

AB **Starch and oxidized starches** of different molecular sizes were carboxymethylated under identical conditions. The degree of substitution (DS) of the so obtained CMS samples increases by decreasing the molecular size of starch which, indeed, is a manifestation of higher extents of oxidation. The latter was effected using different **sodium hypochlorite** concentrations and the extent of oxidation was expressed as chlorine consumption. Pastes of these CMS samples exhibit pseudoplastic behaviour and their apparent viscosity decreases as the extent of oxidation increases, when used as thickeners in printing polyester fabric with disperse dyes, these pastes bring about prints the colour strength (K/S) of which are comparable with these for conventional thickeners, namely commercial CMS and sodium alginate. Mixing of sodium alginate with the prepared CMS samples increases the efficiency of the latter to act as the thickening agent. The highest K/S is obtained with CMS derived from **starch oxidized** using 1.25g active chlorine/l. Mean while, the colour fastness properties of the prints towards rubbing, washing and perspiration are nearly equal to those fabrics printed using the conventional thickeners such as sodium alginate or commercial CMS.

L120 ANSWER 17 OF 58 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1998:125820 HCAPLUS

DOCUMENT NUMBER: 128:155757

TITLE: Effect of oxidizing agents on quality of corn starch adhesive

AUTHOR(S): Zhai, Guangyu

CORPORATE SOURCE: The Medical School Affiliated to Henan Medical University, Zhengzhou, 450052, Peop. Rep. China

SOURCE: Huaxue Yu Nianhe (1997), (4), 237-239
CODEN: HYZHEN; ISSN: 1001-0017

PUBLISHER: Huaxue Yu Nianhe Bianjibu

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB Effects of pH, temp., and catalyst on oxidn. of corn starch with KMnO₄, H₂O₂, and NaClO and the storage life of the corn starch adhesive were studied. The oxidizing ability of the oxidizing agents was enhanced with increasing temp. for all the 3 oxidizing agents, and with decreasing pH for KMnO₄ and H₂O₂, but with increasing pH for NaClO. The storage stability was the best when H₂O₂ was used.

L120 ANSWER 18 OF 58 PASCAL COPYRIGHT 2002 INIST-CNRS. ALL RIGHTS RESERVED.

ACCESSION NUMBER: 1998-0217791 PASCAL

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TITLE (IN ENGLISH): Optimisation of conditions of synthesis of **oxidised starch** from corn and amaranth for use in film-forming applications

AUTHOR: CHATTOPADHYAY S.; SINGHAL R. S.; KULKARNI P. R.

CORPORATE SOURCE: Food and Fermentation Technology Division, University
Department of Chemical Technology, Matunga, Bombay 400
019, India

SOURCE: Carbohydrate polymers, (1997), 34(4), 203-212, 32
refs.
ISSN: 0144-8617 CODEN: CAPOD8

DOCUMENT TYPE: Journal

BIBLIOGRAPHIC LEVEL: Analytic

COUNTRY: United Kingdom

LANGUAGE: English

AVAILABILITY: INIST-19272, 354000075497110010

AB Gum arabic is used as an encapsulating agent because of its film-forming ability. However, India has to import gum arabic for its domestic requirement. **Oxidised starch** has been reported as a substitute for gum arabic but no data are reported on the exact conditions of oxidation of starch or the analytical indicators for determining the suitability of the product for such a purpose. This work reports on the effect of process conditions for oxidation of corn and waxy amaranth starch with film-forming ability as the major criterion. The process was followed using the analytical indicators of oxidation such as carboxyl content, chlorine consumption and ferricyanide number.

L120 ANSWER 19 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

ACCESSION NUMBER: 1997:433305 BIOSIS

DOCUMENT NUMBER: PREV199799732508

TITLE: Enzymic analysis of the structure of **oxidized**
potato **starches**.

AUTHOR(S): Zhu, Q.; Bertoft, E. (1)

CORPORATE SOURCE: (1) Dep. Biochem. Pharmacy, Abo Akademi Univ., BioCity, PO
Box 66, SF-20521 Turku Finland

SOURCE: International Journal of Biological Macromolecules, (1997)
Vol. 21, No. 1-2, pp. 131-135.
ISSN: 0141-8130.

DOCUMENT TYPE: Article

LANGUAGE: English

AB The possibility to use enzymic methods for the analysis of the positions of carboxyl and carbonyl groups in **sodium hypochlorite** oxidized (HO) and hydrogen peroxide **oxidized** (PO) potato **starches** was investigated. The HO-starch, that contained more modified glucosyl residues, possessed a lower beta-amylolysis limit and all of the polymer components were resistant to complete hydrolysis as judged from gel-permeation chromatograms. In contrast, the PO-starch contained 24% of apparently unmodified, linear chains that were hydrolysed by beta-amylase. After debranching, apprx 30% of the chains in the HO-sample and apprx 20% in the PO-sample remained partly resistant to successive beta-amylolysis.

L120 ANSWER 20 OF 58 PASCAL COPYRIGHT 2002 INIST-CNRS. ALL RIGHTS RESERVED.
DUPLICATE

ACCESSION NUMBER: 1996-0479581 PASCAL

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TITLE (IN ENGLISH): The emulsificating ability of **oxidized**
tapioka **starches** with **sodium**
hypochlorite

TITLE: En Japonais

AUTHOR: KONOO S.; OGAWA H.; MIZUNO H.; ISO N.

CORPORATE SOURCE: Tokyo University of Fishery, 4-5-7, Koonan, Manato-ku,
Tokyo, 108, Japan

SOURCE: Nippon Shokuhin Kogyo Gakkai-Shi, (1996), 43(8),

880-886, 12 refs.
ISSN: 0029-0394 CODEN: NSKGAX
DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: Japan
LANGUAGE: English
AVAILABILITY: INIST-21524, 354000066493710020

L120 ANSWER 21 OF 58 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1996:558300 HCAPLUS
DOCUMENT NUMBER: 125:279042
TITLE: Oxidation of primary alcohol groups of naturally occurring polysaccharides with 2,2,6,6-tetramethyl-1-piperidine oxoammonium ion
AUTHOR(S): Chang, Pahn S.; Robyt, John F.
CORPORATE SOURCE: Dep. Biochem. Biophys., Iowa State Univ., Ames, IA, 50011, USA
SOURCE: J. Carbohydr. Chem. (1996), 15(7), 819-830
CODEN: JCACDM; ISSN: 0732-8303
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The primary alc. groups of ten polysaccharides, with widely different structures and water solubilities, were oxidized to carboxyl groups using 2,2,6,6-tetramethyl-1-piperidine oxoammonium ion (TEMPO; 2,2,6,6-tetramethyl-1-piperidinyloxy) at pH 10.8 and 0.degree.C. The yield and selectivity for the primary alc. group were high for all ten of the polysaccharides. The oxidn. greatly increased the water-soly. of the polysaccharides. Water-insol. polysaccharides such as amylose, cellulose, and chitin became water-sol. to the extent of approx. 10% (w/v). The water-sol. polysaccharides had their degree of soly. doubled or tripled. The specific optical rotation, viscosity, and gelling properties with calcium ion were detd. The oxidized polysaccharides are new anionic polymers with unique structures that could have application as gums, gels, and films.

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DUPLICATE

ACCESSION NUMBER: 1995-0551187 PASCAL
COPYRIGHT NOTICE: Copyright .COPYRGT. 1995 INIST-CNRS. All rights reserved.
TITLE (IN ENGLISH): Hypochlorite oxidation of barley and potato starch
AUTHOR: FORSELL P.; HAMUNEN A.; AUTIO K.; SUORTTI T.; POTANEN K.
CORPORATE SOURCE: VTT Biotechnology and Food Research, 02044 VTT, Finland
SOURCE: Staerke, (1995), 47(10), 371-377, 28 refs.
ISSN: 0038-9056 CODEN: STRKA6
DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: Germany, Federal Republic of
LANGUAGE: English
SUMMARY LANGUAGE: German
AVAILABILITY: INIST-5812, 354000050163250010

AB The oxidation of barley and potato starches was studied using **sodium hypochlorite** as oxidant. The degree of oxidation, depolymerization during oxidation and gel formation of barley starch was compared with the properties of potato starch. The effect of oxidation on gelatinization of starches as well as on amylose-lipid complex of barley starch was also analyzed. Barley starch was not as easily **oxidized** as potato **starch**. In both starches depolymerization of amylopectin and amylose occurred during oxidation.

Based on the dissociation enthalpy of amylose-lipid complex, the lipid-bound amylose in barley **starch** was readily **oxidized**. Oxidation decreased the gelling ability of barley starch. At high level of oxidation gel formation by potato starch was much slower and weaker than by barley starch.

L120 ANSWER 23 OF 58 PASCAL COPYRIGHT 2002 INIST-CNRS. ALL RIGHTS RESERVED.
DUPLICATE

ACCESSION NUMBER: 1995-0327421 PASCAL
COPYRIGHT NOTICE: Copyright .COPYRGT. 1995 INIST-CNRS. All rights reserved.
TITLE (IN ENGLISH): Investigation of the influence of primary wheat **starch** characteristics on the **oxidizability** with **sodium hypochlorite**
TITLE (IN GERMAN): Untersuchung des Einflusses charakteristischer Merkmale von Weizenprimastaerke auf deren Oxidierbarkeit mit Natriumhypochlorit
AUTHOR: LAUDE M.; MEUSER F.
CORPORATE SOURCE: Tech. Univ. Berlin, Inst. Lebensmitteltechnologie II, Berlin 13353, Germany, Federal Republic of
SOURCE: Staerke, (1995), 47(5), 174-181, 21 refs.
ISSN: 0038-9056 CODEN: STRKA6
DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: Germany, Federal Republic of
LANGUAGE: German
SUMMARY LANGUAGE: English
AVAILABILITY: INIST-5812, 354000057018270030

AB The oxidation of primary wheat starches with **sodium hypochlorite** in a three stage reaction leads to differing degrees of oxidation depending on the analytical composition, particle size distribution and degree of purification of the starches. Furthermore, it was found that differences in the viscous properties of the starches present before oxidation remained afterwards. The dependence of the degree of oxidation, attained under the reaction conditions, on the protein and fat concentrations, as well as on the median of the particle size distribution, could be described using regression equations. The protein content had a negative and the particle size a positive effect on the degree of oxidation. All three influencing factors interacted with one another. The degrees of oxidation attained were in good agreement with the described equation

L120 ANSWER 24 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

ACCESSION NUMBER: 1994:205048 BIOSIS
DOCUMENT NUMBER: PREV199497218048
TITLE: Oxidized glucosidic oligomers: A new class of sequestering agents: Preparation and properties.
AUTHOR(S): Santacesaria, E. (1); Trulli, F.; Brusani, G. F.; Gelosa, D.; Di Serio, M.
CORPORATE SOURCE: (1) Dip. Chimica, Univ. Napoli, Via Mezzocannone 4, 80134 Napoli Italy
SOURCE: Carbohydrate Polymers, (1994) Vol. 23, No. 1, pp. 35-46.
ISSN: 0144-8617.
DOCUMENT TYPE: Article
LANGUAGE: English

AB **Oxidized** polyglucosides obtained from **starch**, cellulose or dextrans have very interesting properties as calcium sequestrants and are potentially useful as tripolyphosphate substitutes in detergent formulations. Unfortunately, they are poorly biodegradable. On

the other hand, oxidized polyglucosides of lower molecular weight, easily obtainable from starch or dextrans via enzymatic hydrolysis and successive oxidation with **sodium hypochlorite** are biodegradable and retain sequestering properties. In the present work, we compare first of all the sequestering properties and biodegradability of **oxidized starch**, dextrans, glucosidic oligomers and maltotriose. Oxidation has been achieved in all cases with **sodium hypochlorite**. However, well-defined molecular structures have also been prepared by oxidation of starch and dextrans in two steps with sodium periodate and sodium chlorite, respectively. The products obtained have been compared with the corresponding ones obtained by oxidation with **sodium hypochlorite** and gave similar results. In fact, **sodium hypochlorite** oxidizes hydroxyls mainly on the carbon atoms in position 2 and 3 of the glucosidic units, even if with much less selectivity than periodate + chlorite. The reactivity properties of the organic substrates with **sodium hypochlorite** are in the order maltotriose/dextrans/starch with a ratio of 20/3/1. Oxidation occurs at alkaline pH, and pH = 8 is optimal for the reaction rate. At this pH, we studied the kinetic of the dextrin oxidation and the hypochlorite decomposition occurring simultaneously.

L120 ANSWER 25 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

ACCESSION NUMBER: 1992:44456 BIOSIS

DOCUMENT NUMBER: BA93:24431

TITLE: THIN-BOILING AND NONGELLING ADHESIVE PREPARED FROM MAIZE AND WHEAT STARCHES.

AUTHOR(S): CHUNG K M; SEIB P A

CORPORATE SOURCE: DEP. FOOD NUTR., ANDONG NATL. UNIV., ANDONG, KYUNGBUK, KOREA 760-380.

SOURCE: STARCH STAERKE, (1991) 43 (11), 441-446.

CODEN: STARDD. ISSN: 0038-9056.

FILE SEGMENT: BA; OLD

LANGUAGE: English

AB To prepare thin-boiling and nongelling adhesives, granular wheat and corn starches were thinned by treatment with aqueous hydrochloric acid or **sodium hypochlorite** and then hydroxypropylated with propylene oxide. Chlorine oxidation gave more rapid chain cleavage and whiter products with better freeze-storage stability than acid-treatment. Under the same depolymerization conditions, wheat starch was converted to a low viscosity granular starch more rapidly than corn starch. The best adhesive, judged by bonding strength, viscosity stability, and freeze-thaw stability, resulted from wheat or corn **starch oxidized** with 0.82% Cl at pH 8.0 for 1 h followed by hydroxypropylation to molar substitution (M.S.).apprx.0.07.

L120 ANSWER 26 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

ACCESSION NUMBER: 1991:48125 BIOSIS

DOCUMENT NUMBER: BA91:26406

TITLE: THE COMBINED EFFECT OF OXIDATION AND CARBAMOYLETHYLATION ON THE RHEOLOGICAL PROPERTIES OF MAIZE AND RICE STARCHES.

AUTHOR(S): RAGHEB A; REFAI R; EL-THALOUTH I A; HEBEISH A

CORPORATE SOURCE: NATL. RES. CENTRE, TEXTILE RES. DIV., POST NO. 12311, DOKKI, CAIRO, EGYPT.

SOURCE: STARCH STAERKE, (1990) 42 (11), 420-426.

CODEN: STARDD. ISSN: 0038-9056.

FILE SEGMENT: BA; OLD

LANGUAGE: English

AB The combined effect of oxidation and etherification on the molecular structure of starch was investigated. Maize and rice starches were used. Oxidation was effected using **sodium hypochlorite** while

etherification was performed by reathing starch with acrylamide in presence of sodium hydroxide; this reaction is known as carbamoylethylation. The extent of the latter, expressed as % N, was found to increase by decreasing the molecular size of starch through oxidation. The carbamoylethyl starches so obtained could be precipitated by ethanol and they are soluble in water irrespective of the kind of starch. On the other hand, results of rheological properties indicated that they are governed mainly by the molecular size of starch.

Oxidized starches with relatively high molecular size exhibit thixotropic behaviour. The degree of thixotropy decreases and changes into pseudoplasticity as the molecular size of starch decreases. The results also indicated that at a constant rate of shear the apparent viscosity of carbamoylethyl starches decreases as the molecular size decreases. Furthermore, the rheological properties of carbamoylethyl starch pastes undergo considerable changes and so does the apparent viscosity when these pastes were stored for 30 days.

L120 ANSWER 27 OF 58 WPIDS (C) 2002 THOMSON DERWENT
 ACCESSION NUMBER: 1989-245868 [34] WPIDS
 DOC. NO. CPI: C1989-109704
 TITLE: Batting powder for preventing sticking of noodles, etc. -
 is prepd. by oxidn. treating starch with e.g.
sodium hypochlorite.
 DERWENT CLASS: D13
 PATENT ASSIGNEE(S): (SHIM-N) SHIMADA KAGAKU KOGYO
 COUNTRY COUNT: 1
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
JP 01179658	A	19890717	(198934)*		2
JP 04049985	B	19920813	(199237)		2

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 01179658	A	JP 1988-1018	19880106
JP 04049985	B	JP 1988-1018	19880106

FILING DETAILS:

PATENT NO	KIND	PATENT NO
JP 04049985	B Based on	JP 01179658

PRIORITY APPLN. INFO: JP 1988-1018 19880106

AB JP 01179658 A UPAB: 19930923

Batting powder is prepd. from starch which is oxidn.-treated.

USE/ADVANTAGE - Used for preventing sticking of noodle lines, rice cake, 'gyoza', etc. By **oxidising starch** material with Na hypochlorite, bleaching powder, etc. fluidity, transparency, scinitation, etc. are improved and by using large starch granules e.g. potato starch, sago starch, etc. and drying it to a moisture content 8-16%, the fluidity of the obtd. batting powder is improved.

0/0

L120 ANSWER 28 OF 58 WPIDS (C) 2002 THOMSON DERWENT
 ACCESSION NUMBER: 1989-124679 [17] WPIDS
 DOC. NO. CPI: C1989-055222

TITLE: **Oxidised starch** based adhesive
compsn. prepn. - using **sodium**
hypochlorite oxidant, sodium or pyrosulphite, and
contg. starch, polyvinyl or acrylic ester(s), etc..
DERWENT CLASS: A14 A81 G03
INVENTOR(S): MAJOR, P K; MESZAROS, J; POLYANSZKY, E; RUSZNAK, J
PATENT ASSIGNEE(S): (BUDA) BUDAPESTI MUESZAKI EGYETEM
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
-----	-----	-----	-----	-----	-----
HU 47627	T	19890328	(198917)*		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
-----	-----	-----	-----
HU 47627	T	HU 1987-3184	19870713

PRIORITY APPLN. INFO: HU 1987-3184 19870713

AB HU 47627 T UPAB: 19930923

For the prepn. of an adhesive comps. **starch** is **oxidised**
by 0.9-4 wt.% of active chlorine contg. **sodium-**
hypochlorite opt. in the presence of 0.01-0.9 wt.% PVA (%-s based
on starch) at pH 8-11, between 25-55 deg.C temp. A suspn. is obtd. and
treated by 1-10 wt.% of metal-bi of pyro-sulphite. The suspn. is filtered,
washed dried and the solids are dispersed in water to reach 20-40 wt.%.The
compsn. is treated at pH 7 or 7 plus at 69-90 deg.C followed by the
addn./of 0.4-1 wt.% borax, 10-20 wt.% untreated starch and opt. 0.1-5 PVA
(wt.%-s based on solids) and polyvinyl-acetate, poly-acrylate-, -homo- or
-copolymers, cellulose esters or ethers, and in addn. 0.01-0.02 wt.%
salicylic-acid.

L120 ANSWER 29 OF 58 WPIDS (C) 2002 THOMSON DERWENT

ACCESSION NUMBER: 1989-124664 [17] WPIDS

DOC. NO. CPI: C1989-055207

TITLE: Prepn. of soluble starch - by **sodium**
hypochlorite oxidn. and alkali hydroxide
treatment.

DERWENT CLASS: A11 F06 F09 G02

INVENTOR(S): GOMON, P

PATENT ASSIGNEE(S): (GOMO-I) GOMORY P

COUNTRY COUNT: 1

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
-----	-----	-----	-----	-----	-----
HU 47603	T	19890328	(198917)*		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
-----	-----	-----	-----
HU 47603	T	HU 1986-5527	19861230

PRIORITY APPLN. INFO: HU 1986-5527 19861230

AB HU 47603 T UPAB: 19930923

A modified soluble starch soln. is prepd. by **oxidising** granular **starch** or **starch** contg. milled prods. dispersed and homogenised in water with 2-20 wt.% (based on starch) of conc. **sodium-hypochlorite** soln. contg. 12.5% active chlorine, at 0-50 deg.C pref. 15-30 deg.C.. The **oxidised starch** is mixed with 4-25 wt.% (based on starch) of solid NaOH or KOH dissolved in water, at 0-50 deg.C.. The alkaline soln. is used directly or following neutralisation.

The prod. is used as an adhesive thickening agent, paper coating, textile size, printing means and as films.

L120 ANSWER 30 OF 58 WPIDS (C) 2002 THOMSON DERWENT
 ACCESSION NUMBER: 1989-174307 [24] WPIDS
 DOC. NO. NON-CPI: N1989-133047
 DOC. NO. CPI: C1989-077067
 TITLE: Novel phosphated **oxidised starch** - of
 use in controlling rheology of aq. dispersions of solid
 particulates e.g. in lithography and drilling fluids.
 DERWENT CLASS: A11 A97 D25 G02 G05 H01 P75
 INVENTOR(S): JUST, E K; NICKOL, R G
 PATENT ASSIGNEE(S): (AQUA-N) AQUALON CO
 COUNTRY COUNT: 5
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
EP 319989	A	19890614	(198924)*	EN	12
R: DE FR GB					
US 4841040	A	19890620	(198931)		7
CA 1308099	C	19920929	(199245)		
EP 319989	B1	19940921	(199436)	EN	14
R: DE FR GB					
DE 3851614	G	19941027	(199442)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 319989	A	EP 1988-120568	19881208
US 4841040	A	US 1987-131053	19871209
CA 1308099	C	CA 1988-585298	19881208
EP 319989	B1	EP 1988-120568	19881208
DE 3851614	G	DE 1988-3851614	19881208
		EP 1988-120568	19881208

FILING DETAILS:

PATENT NO	KIND	PATENT NO
DE 3851614	G Based on	EP 319989

PRIORITY APPLN. INFO: US 1987-131053 19871209
 AB EP 319989 A UPAB: 19930923

A novel **oxidised** and depolymerised **starch** (I) is phosphated to a phosphate degree of substitution 0.002-0.005 (esp. 0.004-0.005), has a mol. wt. 1,500-40,000 (esp. 15,000-20,000) Daltons and is soluble in cold water by virtue of a carboxyl degree of substitution 0.30 to 0.96 (esp. 0.44-0.50).

All starches e.g. corn, tapioca, sago, wheat, rice and potato, are suitable, but esp. waxy maize or potato starch. The phosphate ester group

may be introduced before or after bleach oxidation of the starch, using a known phosphating agent, esp. sodium trimetaphosphate (STMP). Oxidation/depolymerisation of the starch is pref. by reaction with **sodium hypochlorite** at pH 7.5-10, 25-65 deg.C; (I) is recovered as the alkali metal salt and may be converted to free acid by reaction with a strong mineral acid, e.g. hydrochloric acid. In an alternative two-step oxidation, starch is reacted with sodium periodate to obtain dialdehyde starch, and the latter is oxidised with sodium chlorite under acid conditions.

USE - (I) is used to control the rheology of an aq. dispersion containing solid particulates (meth claimed) e.g. in latex paints, joint cements, drilling muds, paper coatings and filler slurries and in prepn. of dispersions generally; it is useful as a detergent builder, in lithography as a replacement for gum arabic in gumming and fountain solutions and as partial replacement for polyacrylates in paper furnishes.
0/0

L120 ANSWER 31 OF 58 PASCAL COPYRIGHT 2002 INIST-CNRS. ALL RIGHTS RESERVED.
DUPLICATE

ACCESSION NUMBER: 1989-0313258 PASCAL
TITLE (IN ENGLISH): Synthesis and characterization of hypochlorite
oxidized starches
TITLE (IN FRENCH): Synthese et caracterisation des amidons oxydes par
l'hypochlorite
AUTHOR: HEBEISH A.; ABD EL-THALOUTH I.; REFAI R.; RAGHEB A.
CORPORATE SOURCE: National res. cent., textile div., Cairo, Egypt
SOURCE: Staerke, (1989), 41(8), 293-298, 25 refs.
Project: 2 tabl.
ISSN: 0038-9056 CODEN: STRKA6
DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: Germany, Federal Republic of
LANGUAGE: English
SUMMARY LANGUAGE: German
NOTE: 6 fig.
AVAILABILITY: CNRS-5812

L120 ANSWER 32 OF 58 PAPERCHEM2 COPYRIGHT 2002 ELSEVIER ENGINEERING
INFORMATION INC.

ACCESSION NUMBER: 89:4983 PAPERCHEM2
SYSTEM NUMBER: 000271164
DOCUMENT NUMBER: AB6004983
TITLE: Preparation and Papermaking Application of
Oxidized Starch
AUTHOR(S): Polyanszky, E.; Rusznak, I. (Budapesti Muszaki
Egyetem. (Budapest: Hungary)); Konig, L. (Papiripari
Vallalat. (Szolnok: Hungary))
SOURCE: Papiripar, (1988) Vol. 32, no. 3, pp. 98-101. [Hung.].
DOCUMENT TYPE: Journal
FILE SEGMENT: PAPERCHEM
LANGUAGE: Hungarian

AB A method for the oxidation of Hungarian maize (Indian corn) starch with **sodium hypochlorite** (NaOCl) has been developed which yields a chemical applicable on an industrial scale to the surface treatment (coating) of paper, as a corrugating adhesive, and for gluing of boxes and kraft paper bags. Maize oxystarch can be prepared in solid, dispersed, or dissolved form. Printing and writing papers surface-sized with this domestic product show properties comparable with those of imported oxystarch-treated papers. The **oxidized corn starch** preparation will replace imported products, such as Amisol

and Perfectamyl. (2 fig., 4 ref., 2 tab.)

L120 ANSWER 33 OF 58 TEXTILETECH COPYRIGHT 2002 Inst. of Textile Technology
ACCESSION NUMBER: 508238 TEXTILETECH
DOCUMENT NUMBER: 198705923
TITLE: PREPARATION OF ADHESIVES FROM OXIDIZED STARCH.
AUTHOR: Polyanszky E.; Rusznak I.; Kiss M.; Lepenye G.
SOURCE: Kolorisztikai Ertesito, 29 No. 1: 25-32 (Feb. 1987).
Reference(s): 33 refs.
CODEN: KOERA9
DOCUMENT TYPE: Journal
LANGUAGE: Hungarian
AB Cornstarch was oxidized with **sodium hypochlorite**, and the properties of the adhesives made from the derivatives were examined and compared with the characteristics of adhesives made of native starch. The aim of the study was to use the oxidized products for preparing paper adhesives of reduced viscosity and high binding energy.

L120 ANSWER 34 OF 58 PAPERCHEM2 COPYRIGHT 2002 ELSEVIER ENGINEERING INFORMATION INC.
ACCESSION NUMBER: 86:9557 PAPERCHEM2
SYSTEM NUMBER: 000234698
DOCUMENT NUMBER: AB5709557
TITLE: Scale Inhibitor for Pulp Digester
INVENTOR(S): Ikuta, N.; Takahashi, T.; Kajiwara, S.; Mitsubishi Gas Chemical Co. Inc.

	NUMBER	DATE
PATENT INFORMATION:	JP 61108787	19860527
APPLICATION INFORMATION:	JP 1984-227391	19841029
SOURCE:	p. 5.	
DOCUMENT TYPE:	Patent	
FILE SEGMENT:	PAPERCHEM	
LANGUAGE:	Japanese	

AB A polysaccharide is oxidized with **sodium hypochlorite** such that the oxidized polysaccharide contains more than 40% carboxyl group and has a mol.wt. of 30,000-100,000 determined by the gel permeation method. Thus, 12.1 wt.% **sodium hypochlorite** (117 g) is added to cornstarch (30 wt.%, 16.2 g) in water at a pH of 8.5 and 30 C over 1 hr. Methanol is added to the mixture. The precipitate is collected and washed thoroughly with methanol until the chloride ion is completely eliminated. The **oxidized starch** has 44.1% carboxyl group and mol.wt. of 58,000. The alkali or ammonium salt of the oxidized polysaccharide (5-20 ppm) is added to a pulp digester to prevent scaling.

L120 ANSWER 35 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1986:224149 BIOSIS
DOCUMENT NUMBER: BA81:115449
TITLE: DEGRADATION OF POTATO STARCH DURING ACID MODIFICATION AND HYPOCHLORITE OXIDATION.
AUTHOR(S): ALI S Z; KEMPF W
CORPORATE SOURCE: DISCIPLINE RICE PULSE TECHNOL., CENTRAL FOOD TECHNOL. RES. INST., MYSORE, KARNATAKA STATE 570 013, INDIA.
SOURCE: STARCH STAERKE, (1986) 38 (3), 83-86.
CODEN: STARDD. ISSN: 0038-9056.
FILE SEGMENT: BA; OLD
LANGUAGE: English
AB Potato starch (35-40% slurry) was (i) acid modified with hydrochloric acid

(0.5-N, 50.degree. C, up to 4.5 h) and (ii) oxidized using **sodium hypochlorite** (7.5 to 70 mg Cl₂/g starch, 38.degree. C, 2.5 h). Starch degradation over the treatment range was followed by: the number average molecular weight .hivin.Mn, alkali fluidity number (AFN), iodine binding capacity (IBC), ash and sodium content of the resultant acid modified starch; and carboxyl content, .hivin.Mn , AFN, ash and sodium content of **oxidized starch**.

L120 ANSWER 36 OF 58 PAPERCHEM2 COPYRIGHT 2002 ELSEVIER ENGINEERING INFORMATION INC.

ACCESSION NUMBER: 87:605 PAPERCHEM2
SYSTEM NUMBER: 000240696
DOCUMENT NUMBER: AB5800605
TITLE: Addition of Binders to Pulp for the Manufacture of Bag Paper
AUTHOR(S): Ikonopisova, B.; Bencheva, S.; Nenkova, S.; Draganova, R.; Vulchev, V.
SOURCE: Novosti Tselul.-Khart. Prom., (1986) Vol. 16, no. 2, pp. 18-21. [Bulg.].
DOCUMENT TYPE: Journal
FILE SEGMENT: PAPERCHEM
LANGUAGE: Bulgarian

AB Laboratory studies were conducted on the effect of adding 1-4% of the following binders during and/or after unbleached kraft pulp beating (to 30 SR) on the properties of bag paper: CMC, raw starch, sized (in an aqu. bath at 87-90 C for 30 min) starch, and 5 variations of **oxidized starch** (**oxidized** at 10-25% concn. with 1-5% **sodium hypochlorite** at 50 C for 10-120 min). The breaking length, stretch, folding endurance, tearing strength, bursting strength, degree of sizing, and air permeability of papers obtained are depicted graphically. Oxidation of starch must be carried out under mild conditions to be suitable for use as a binder, i.e., the **starch oxidized** under the mildest conditions gave the greatest improvement in paper properties. Pulp beating in the presence of 1% CMC or 2% **oxidized** or sized **starch** resulted in improved physical and mechanical properties, as does the addition of 2-3% sized or **oxidized starch** after beating. The use of **oxidized starch** and CMC was introduced at the St. Kiradzhev Pulp and Paper Mill (Bulgaria) in the manufacture of bag paper. (3 fig., 9 ref., 2 tab.)

L120 ANSWER 37 OF 58 PAPERCHEM2 COPYRIGHT 2002 ELSEVIER ENGINEERING INFORMATION INC.

ACCESSION NUMBER: 85:13359 PAPERCHEM2
SYSTEM NUMBER: 000225110
DOCUMENT NUMBER: AB5613359
TITLE: Cationic Starch
INVENTOR(S): Sugiyama, T.; Kyoritsu Research Institute of Organic Industry Ltd.

	NUMBER	DATE
PATENT INFORMATION:	JP 60059194	19850405
APPLICATION INFORMATION:	JP 1983-163354	19830907
SOURCE:	p. 5.	
DOCUMENT TYPE:	Patent	
FILE SEGMENT:	PAPERCHEM	
LANGUAGE:	Japanese	

AB **Starch** is **oxidized** with **sodium hypochlorite** or hydrogen peroxide to form an anionic starch

(content of anionic groups 0.3-15 mole%), to which a mixture of an epichlorohydrin cationic copolymer (30-100 parts) prepared from both a condensate of a phenol derivative, formaldehyde, and a dialkylamine and a condensate of bisphenol A, formaldehyde, and the dialkylamine in a ratio of 100-0:0-100 and 3-chloro-2-hydroxypropyltrimethylammonium chloride (0-70 parts) are added. The mixture is stirred at 40-90 C. The cationic starch obtained is added to pulp slurried in water. The mixture is converted to paper, which has a good surface strength.

L120 ANSWER 38 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1985:321438 BIOSIS
DOCUMENT NUMBER: BA79:101434
TITLE: TRANSFORMATIONS OF POTATO STARCH DURING OXIDATION WITH HYPOCHLORITE.
AUTHOR(S): BORUCH M
CORPORATE SOURCE: INSTITUTE OF CHEMICAL FOOD TECHNOLOGY, TECHNICAL UNIVERSITY OF LODZ, STEFANOWSKIEGO 4/10, 90-924 LODZ, POLAND.
SOURCE: STARCH STAERKE, (1985) 37 (3), 91-98.
CODEN: STARDD. ISSN: 0038-9056.
FILE SEGMENT: BA; OLD
LANGUAGE: English

AB Five starch samples of different degree of oxidation were obtained with the help of **sodium hypochlorite**. Apart from that, commercial starch was divided into 3 fractions of differentiated size of grains and the fractions were also subjected to oxidation. Large grains of starch undergo the oxidation process more easily than small grains, from **oxidized starch** hydrolysates glucuronic acid amounting to about 75% of carboxyl groups and gluconic acid to about 25% of carboxyl groups, can be separated. Side reaction proceeding which is shown by the increase of reducing value and the decrease of viscosity of **oxidized starch**. In **starch oxidized** with hypochlorite absence of dialdehyde systems is characteristic in contrast to **starch oxidized** with periodate; and in the process of oxidation with hypochlorite, starch molecules change their shape and spatial system, which is indicated by the changes of color complexes with I, greater resistance to the action of amylolytic enzymes and greater capacity for forming flexible gels in the form of films.

L120 ANSWER 39 OF 58 PAPERCHEM2 COPYRIGHT 2002 ELSEVIER ENGINEERING INFORMATION INC.

ACCESSION NUMBER: 85:7926 PAPERCHEM2
SYSTEM NUMBER: 000219677
DOCUMENT NUMBER: AB5607926
TITLE: Paste for Wallpapers
INVENTOR(S): Kodet, J.; Krejci, V.; Preclik, B.; Rippl, V.

	NUMBER	DATE
PATENT INFORMATION:	CS 216494	19840901
APPLICATION INFORMATION:	CS 1980-8638	19801209
SOURCE:	p. 4.	
DOCUMENT TYPE:	Patent; (UNAVAILABLE DOCUMENT)	
FILE SEGMENT:	PAPERCHEM	
LANGUAGE:	Czech	

AB An adhesive for hanging wallpapers on rough and porous bases is prepared from potato **starch oxidized** with 200-400 parts **sodium hypochlorite** (viscosity of 25% aqu. solution at 50 C 100 mPa.sec or less), 30-40 parts borax, 40 parts sodium nitrate, and 1-10 parts technical soap. The components are dissolved in 13,000 parts water, the pH of the solution is adjusted to 6-7, 1000-3000 parts white

paper stock is pulped in this solution, and 500-800 parts CMC is added. The composition is then ripened for 8 hr, dried, and ground. A typical composition comprised 23.9% CMC, 10% **oxidized starch**, 1.5% borax, 1.5% sodium nitrate, 0.1% technical soap, and 63% pulp from white waste paper. From: C.A. 103, no. 12: abstr. 89,269 (Sept. 23, 1985); copyright Am.Chem.Soc.

L120 ANSWER 40 OF 58 PAPERCHEM2 COPYRIGHT 2002 ELSEVIER ENGINEERING INFORMATION INC.

ACCESSION NUMBER: 80:8937 PAPERCHEM2
SYSTEM NUMBER: 000158018
DOCUMENT NUMBER: AB5108937
TITLE: STARCH ADHESIVE COMPOSITION CONTAINING AN
OXIDIZED WAXY STARCH ESTER
INVENTOR(S): Bovier, E. M.; Carter, J. A.; Anheuser-Busch Inc.

	NUMBER	DATE
PATENT INFORMATION:	US 4231803	19801104
APPLICATION INFORMATION:	US 1978-908222	19780522
SOURCE:	p. 4. 15 claims.	
DOCUMENT TYPE:	Patent	
FILE SEGMENT:	PAPERCHEM	
LANGUAGE:	English	

AB A composition suitable for use as a remoistenable adhesive for gummed tape comprises an esterified **oxidized waxy starch** ester, a plasticizer such as urea or glycerol, and water. The ester has an acyl substitution of 1.5-2.0% and contains 0.3-0.5% carboxyls. The ester can be a modified **starch** acetate prepared by **oxidizing waxy starch** with **sodium hypochlorite**, then acetylating with acetic anhydride.

L120 ANSWER 41 OF 58 PAPERCHEM2 COPYRIGHT 2002 ELSEVIER ENGINEERING INFORMATION INC.

ACCESSION NUMBER: 82:3663 PAPERCHEM2
SYSTEM NUMBER: 000177394
DOCUMENT NUMBER: AB5303663
TITLE: Hypochlorite-**oxidized Cassava Starch**
AUTHOR(S): Aarsen, F. G. van den.; Beenackers, A. A. C. M.
SOURCE: Chem. Age India, (1980) Vol. 31, no. 3, pp. 243-246.
DOCUMENT TYPE: Journal
FILE SEGMENT: PAPERCHEM
LANGUAGE: UNAVAILABLE

AB Oxystarch was obtained from the oxidation of cassava starch with **sodium hypochlorite** solution at 32 C. The viscosity of the oxystarch decreased with increasing reaction time and **sodium hypochlorite**/cassava starch ratio while the carboxyl content and light transmittance increased. Partial oxidation of the starch improved the retrogradation characteristics and decreased the gelation temperature. The starch's insolubility in cold water and solubility in sodium hydroxide solution were not affected. Paper strength and textile printing tests performed on the oxystarch indicated that the prepared starch can be competitive with commercial oxystarch. However, the poor cold water solubility may be a disadvantage in printing applications. (5 fig., 14 ref., 2 tab.)

L120 ANSWER 42 OF 58 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1980:428134 HCAPLUS
DOCUMENT NUMBER: 93:28134
TITLE: Hypochlorite oxidized cassava starch

AUTHOR(S): Van den Aarsen, Frank G.; Beenackers, Antonie A. C. M.
CORPORATE SOURCE: Dep. Chem. Eng., Ahmadu Bello Univ., Zaria, Nigeria
SOURCE: Chem. Age India (1980), 31(3), 243-6
CODEN: CHAIAT; ISSN: 0009-2320

DOCUMENT TYPE: Journal
LANGUAGE: English

AB The viscosity of oxystarch (I), obtained by oxidn. of cassava starch (II) with NaClO at 32.degree., decreased whereas carboxyl content and light transmittance of I increased with increasing reaction time and NaClO/II ratio. Partial oxidn. improved the retrogradation characteristics and decreased the gelation temp. of II while insoly. in cold H2O and soly. in NaOH solns. were not affected. Preliminary tests on the applicability of I in paper prodn. and textile printing revealed that the I prepd. can be competitive to com. I although poor cold H2O soly. is a disadvantage for application in printing.

L120 ANSWER 43 OF 58 PAPERCHEM2 COPYRIGHT 2002 ELSEVIER ENGINEERING INFORMATION INC.

ACCESSION NUMBER: 80:3957 PAPERCHEM2
SYSTEM NUMBER: 000153038
DOCUMENT NUMBER: AB5103957
TITLE: CARRIERS FOR CORRUGATED BOARD ADHESIVES
INVENTOR(S): Suzuki, H.; Hayashi, M.; Sakamoto, S.; Koganei, T.; Ajinomoto Co. Inc.

	NUMBER	DATE
PATENT INFORMATION:	JP 54100434	19790808
APPLICATION INFORMATION:	JP 1978-6800	19780125
SOURCE:	p. 5.	
DOCUMENT TYPE:	Patent; (UNAVAILABLE DOCUMENT)	
FILE SEGMENT:	PAPERCHEM	
LANGUAGE:	Japanese	

AB Corrugating adhesive carriers comprise a mixture of corn starch oxidized lightly with 500-6000 ppm Cl and corn starch intensely oxidized with 6000-20,000 ppm Cl. For instance, 500 kg corn starch dispersed in 700 L water is treated with aq. NaOCl containing 2400 ppm effective Cl (based on starch) at pH 11 and heated at 45 C for 1 hr to give a slightly oxidized starch solution, while a heavily oxidized starch solution is prepared by treating a dispersion of 1170 kg corn starch in 1640 L water with aq. NaOCl containing 11,000 ppm effective Cl at pH 11 and heating it for 1 hr at 45 C. Both solutions are reduced with Na bisulfite, neutralized to pH 6.5, filtered, dried, sieved, dispersed in 230 L water, pasted with 7.5 kg NaOH in 13 L water, stirred at 70 C for 20 min, and diluted with 157 L water to give a carrier starch. A fast-bonding corrugating paste with good bonding strength is prepared by mixing 500 kg of this carrier starch with a primary adhesive obtained by treating 200 kg of corn starch in 600 L water with 55 kg borax. From: C.A. 92, no. 4: abstr. 24,728 (Jan. 28, 1980); copyright Am.Chem.Soc.

L120 ANSWER 44 OF 58 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1978:506222 HCAPLUS
DOCUMENT NUMBER: 89:106222
TITLE: Starch oxidation for food thickening agent
INVENTOR(S): Miyake, Shigekazu; Ensho, Makoto; Nakai, Takeshi; Tokuda, Masahiro; Kikuchi, Kazunori
PATENT ASSIGNEE(S): Sugiyama Industrial Chemical Institute, Japan
SOURCE: Japan. Kokai, 2 pp.
CODEN: JKXXAF

DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 53050347	A2	19780508	JP 1976-123085	19761014
JP 55046160	B4	19801121		

AB Starch [9005-25-8] granules are readily converted into a powder having an even granular size by treatment with **oxidizing** agents or acids; the treated, pulverized starch gives a uniform consistency when used as a food thickener. Thus, 50 kg corn starch (15-20.mu. diam.) was suspended in 40 L warm water. The suspension was adjusted to pH 10 with NaOH, mixed with 10% NaOCl, stirred at 40.degree. for 4 h, neutralized with HCl, dewatered, and dried. The treated starch was ground in a mill to obtain a powder (granules <10 .mu. diam.).

L120 ANSWER 45 OF 58 PAPERCHEM2 COPYRIGHT 2002 ELSEVIER ENGINEERING INFORMATION INC.

ACCESSION NUMBER: 77:6618 PAPERCHEM2
 SYSTEM NUMBER: 000122559
 DOCUMENT NUMBER: AB4806618
 TITLE: PROCESS FOR MAKING A THERMAL CONVERTING STARCH
 BY MODIFICATION OF **OXIDIZED STARCH**
 WITH ALUMINUM SALTS
 INVENTOR(S): Voigt, J. E.; Bovier, E. M.; Anheuser-Busch Inc.

	NUMBER	DATE
PATENT INFORMATION:	US 4040862	19770809
APPLICATION INFORMATION:	US 1976-702032	19760702
SOURCE:	p. 4. 9 claims.	
DOCUMENT TYPE:	Patent	
FILE SEGMENT:	PAPERCHEM	
LANGUAGE:	English	

AB A process for preparing starch for use in paper coating compositions comprises forming an aq. slurry of unmodified **starch**, **oxidizing** the **starch** to a degree equivalent to that obtained by oxidizing with 1-2% available Cl₂, adding a water-soluble Al salt to the **oxidized starch**, and adjusting the pH to 6-7. The oxidizing agent used can be **sodium hypochlorite**; the Al salt can be alum. When the treated starch is pasted at elevated temp. and pressure, the starch degrades to give a low-viscosity material which is stable in suspension for considerable time.

L120 ANSWER 46 OF 58 WPIDS (C) 2002 THOMSON DERWENT
 ACCESSION NUMBER: 1976-82081X [44] WPIDS
 TITLE: Emulsion stabilizer e.g. for foods - formed by oxidn. of aq. starch suspension, then hydrolysing with alpha-amylase.
 DERWENT CLASS: A11 A97 D13
 PATENT ASSIGNEE(S): (MATS) MATSUTANI KAGAKU KOGYO
 COUNTRY COUNT: 1
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
JP 51104486	A	19760916	(197644)*		

JP 57044371 B 19820921 (198241)

PRIORITY APPLN. INFO: JP 1975-30503 19750312

AB JP 51104486 A UPAB: 19930901

An emulsion stabilizer of liquid stability comparable with that of gum arabic is prepared by oxidn. of starch in the form of a 30-40 wt. % aq. suspension at 20-40 degrees C to form **oxidised starch** of oxidn. degree 3-5% viscosity 15000 cp. (10% aq. soln. at 30 degrees C) and av. polymerisation degree 30-50. As oxidising agent, **sodium hypochlorite** is esp. pref. added in an amt. of 2-8 wt. % and the reaction is carried out at pH 7-9. The **oxidised starch** is hydrolysed with alpha-amylase at 70-100 degrees C, pref. 80-90 degrees C to obtain a hydrolyzate of D.E. <5 and viscosity 50-150 cp (30% aq. soln. at 30 degrees C). The stabilizer is inexpensive and intermixing of infectious microbe is little. Useful as emulsion stabilizer for foods.

L120 ANSWER 47 OF 58 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1974:61393 HCAPLUS

DOCUMENT NUMBER: 80:61393

TITLE: Process for oxidising polysaccharides

INVENTOR(S): Bright, Samuel C.; Lamberti, Vincent; Powers, Peter J.

PATENT ASSIGNEE(S): Unilever Ltd.

SOURCE: Brit., 8 pp. Division of Brit. 1,330,121

CODEN: BRXXAA

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 1330123	A	19730912	GB 1973-6379	19700820

AB Phosphate-free **oxidized starch** [9005-25-8] detergent

builders were manufd. by oxidn. of starch with Na hypochlorite [7681-52-9] in aq. soln. at pH 8-8.5. Thus, 0.1 mole corn starch were dispersed in 30-40 ml H2O contg. 0.01 mole NaHCO3, 8.6% aq. NaOCl (0.3 mole) was added, and the soln. stirred at 20-30.deg. for 4.8 hr. After addn. of NaHSO3 the soln. was added to EtOH to give 95% dicarboxyl starch with dicarboxyl content 67% and CO2Na content 38.4%. The detergency on a vacuum cleaner dust-soiled cotton-polyester fabric of a 0.1% soln. of a compn. contg. 50% dicarboxyl starch was 17.2 compared with 17.7 for a similar Na tripolyphosphate compn.

L120 ANSWER 48 OF 58 PAPERCHEM2 COPYRIGHT 2002 ELSEVIER ENGINEERING INFORMATION INC.

ACCESSION NUMBER: 72:10387 PAPERCHEM2

SYSTEM NUMBER: 000064158

DOCUMENT NUMBER: AB4310387

TITLE: ADHESIVE FOR PAPER BAGS FROM **OXIDIZED CORN STARCH**. (1)

AUTHOR(S): Khadzhiev, P.; Khadzhieva, L.; Dimitrova, M.

SOURCE: Tseluloza Khartiya, (Sept./Oct., 1972) Vol. 3, no. 5, pp. 13-15. [Bulg.].

DOCUMENT TYPE: Journal

FILE SEGMENT: PAPERCHEM

LANGUAGE: Bulgarian

AB The adhesive presently used at the Karadzhiev plant in the mfr. of paper bags is prepd. from cornstarch trd. with alkali. The adhesive hardens and

dries slowly. In order to obtain an adhesive of better quality, a study was made of various preps. obtained by oxidn. of cornstarch with Na and Ca hypochlorite. The **starch** samples were **oxidized** at 40 C. for 1 hr. at hypochlorite concns. corresp. to an active Cl content of 3-6%, based on o.d. starch. Oxidn. with Na hypochlorite at an active Cl concn. of 4% of a 20% starch suspension gave the best quality adhesive (hardening time 1 min., drying time 36 min.), with rheological props. comparable to those of Solvicol CZ-25-CN. 8 ref.

L120 ANSWER 49 OF 58 PAPERCHEM2 COPYRIGHT 2002 ELSEVIER ENGINEERING INFORMATION INC.

ACCESSION NUMBER: 71:11893 PAPERCHEM2
SYSTEM NUMBER: 000053664
DOCUMENT NUMBER: AB4211893
TITLE: SIMULTANEOUSLY OXIDIZING STARCH
WITH A HYPOHALITE AND AIR
INVENTOR(S): Moskaluk, J. A.; CPC International Inc.

	NUMBER	DATE
PATENT INFORMATION:	US 3615786	19711026
SOURCE:	6 claims..	
DOCUMENT TYPE:	Patent	
FILE SEGMENT:	PAPERCHEM	
LANGUAGE:	English	

AB A process for prep. an **oxidized starch** that is useful as a pigment binder in a paper-coating cpn. comprises subjecting raw granular waxy milo starch in aq. slurry contg. 25-35 wt.% starch solids at a pH of 8-12 and a temp. of 100-120 F. to the oxidg. action of **sodium hypochlorite**, simult. bubbling air through the slurry, neutg. the residual hypochlorite at the conclusion of the oxidn., and recovering the desired prod.

L120 ANSWER 50 OF 58 PAPERCHEM2 COPYRIGHT 2002 ELSEVIER ENGINEERING INFORMATION INC.

ACCESSION NUMBER: 76:6811 PAPERCHEM2
SYSTEM NUMBER: 000110412
DOCUMENT NUMBER: AB4706811
TITLE: **OXIDIZED STARCH** FOR PAPER INDUSTRY
AUTHOR(S): Mehta, H. U.; Mehta, P. C.
SOURCE: Indian Pulp Paper, (March-June 1971) Vol. 25, no. 9-12, pp. 550-554. 27, no. 10: 23, 25; no. 11: 16-17 (April, May 1973)..
DOCUMENT TYPE: Journal
FILE SEGMENT: PAPERCHEM
LANGUAGE: UNAVAILABLE

AB ATIRA (Ahmedabad Textile Industry Research Assocn.) has developed an economical starch oxidation process, using a mild NaOCl treatment, which has been patented and licensed to Maize Products Private Ltd. (Kathwada, Ahmedabad, India). Advantages of the product in paper mill trials are listed. The **oxidized starches** can be applied at the paper machine wet-end, size-press, calender, and on coating machines, and also used to modify internal rosin size for printable papers. (4 fig., 15 ref., 3 tab.)

L120 ANSWER 51 OF 58 PAPERCHEM2 COPYRIGHT 2002 ELSEVIER ENGINEERING INFORMATION INC.

ACCESSION NUMBER: 68:6451 PAPERCHEM2
SYSTEM NUMBER: 000016204
DOCUMENT NUMBER: AB3906451

TITLE: PROPERTIES OF OXYSTARCH USED AS PAPER COATING BINDER
AUTHOR(S): Iliescu, G.; Pancu, M.
SOURCE: Celuloza Hirtie, (July, 1968) Vol. 17, no. 7, pp.
277-82. [Rom.].
DOCUMENT TYPE: Journal
FILE SEGMENT: PAPERCHEM
LANGUAGE: Romanian

AB The viscy., adhesive and flow props., water retention, wettability, and related rheological and surface props. of **starch oxidized** with NaOCl were investigated. It is concluded that the effect of the oxidn. degree on starch soln. props. depends on the amt. of active Cl used in modifying the starch raw matl. Thus, starch pastes have a pseudoplastic rheology, except those oxidized using 6% active Cl which show Newtonian flow. Retrogradation can be stopped at 3% active Cl. 5 ref.

L120 ANSWER 52 OF 58 PAPERCHEM2 COPYRIGHT 2002 ELSEVIER ENGINEERING INFORMATION INC.

ACCESSION NUMBER: 68:6450 PAPERCHEM2
SYSTEM NUMBER: 000016203
DOCUMENT NUMBER: AB3906450
TITLE: OXYSTARCH AS PAPER COATING BINDER
AUTHOR(S): Iliescu, G.; Pancu, M.
SOURCE: Celuloza Hirtie, (June, 1968) Vol. 17, no. 6, pp.
225-9. [Rom.].
DOCUMENT TYPE: Journal
FILE SEGMENT: PAPERCHEM
LANGUAGE: Romanian

AB The use of starch binders for coating of printing papers requires prelim. chem. modification in prepg. appropriate aq. dispersions. Potato and corn **starches** were **oxidized** by trmt. with varying amts. of NaOCl in order to study the effects of active Cl addns. on the oxidation degree and fluidity of the resulting pastes, as well as the effect of the oxidn. temp. on starch viscy. Both Cl addn. and oxidg. temp. were found to exert profound influences on starch structure. With increased proportion of NaOCl, the starch retrogradation diminishes while the difference of fluidity between 50 and 20 C. decreases. This allows the fluidity of starch pastes to be kept const. despite the small temp. variations encountered during paper coating. Unmodified corn starch requires more NaOCl to attain the fluidity needed for paper coatings. 7 ref.

L120 ANSWER 53 OF 58 PAPERCHEM2 COPYRIGHT 2002 ELSEVIER ENGINEERING INFORMATION INC.

ACCESSION NUMBER: 69:5429 PAPERCHEM2
SYSTEM NUMBER: 000025482
DOCUMENT NUMBER: AB4005430
TITLE: INFRARED SPECTROSCOPY OF COATED PAPERS. (5). STUDIES WITH MODIFIED STARCHES
AUTHOR(S): Jayme, G.; Rohmann, E.-M.
SOURCE: Papier, (Nov., 1967) Vol. 21, no. 11, pp. 813-22.
[Original in Ger.; cf. ABIPC 39: abstr. 1700. Transl. In Engl. (27 p.) now available from IPC at copying cost].
DOCUMENT TYPE: Translation
FILE SEGMENT: PAPERCHEM
LANGUAGE: German; English

L120 ANSWER 54 OF 58 PAPERCHEM2 COPYRIGHT 2002 ELSEVIER ENGINEERING INFORMATION INC.

ACCESSION NUMBER: 68:1700 PAPERCHEM2
SYSTEM NUMBER: 000011453
DOCUMENT NUMBER: AB3901700
TITLE: INFRARED SPECTROSCOPY OF COATED PAPERS. (5) STUDIES
WITH MODIFIED STARCHES
AUTHOR(S): Jayme, G.; Rohmann, E.-M.
SOURCE: Papier, (Nov., 1967) Vol. 21, no. 11, pp. 813-22.
[Ger.; Engl. & Fr. sum.] cf. ABIPC 37: abstr. 8735..
DOCUMENT TYPE: Journal
FILE SEGMENT: PAPERCHEM
LANGUAGE: German
SUMMARY LANGUAGE: English; French

AB Previous expts. showed that com. starch prods. used in paper coating could be detd. quantitatively by means of the quotient of fully described extinction coeffs. For certain prods. a linear relationship existed between this quotient and the starch content of the coatings. However this relationship varied from sample to sample, and the quant. detn. of an unknown starch sample was not feasible. In this new study, **oxidized starches** were prepd. under carefully controlled lab. conditions, and were then anald. Series of oxidns. were made with NaOCl and with Na periodate; the latter gave dialdehyde starches which showed a higher redg. capacity (detd. by the ferricyanide method) than **starches oxidized** with NaOCl. The NaOCl-trd. starches, when examd. by the IR-KBr pellet method, revealed no marked chemical changes. In dialdehyde starches, however, the bands characg. the pyran ring disappeared, whereas aldehyde bands were formed. Unfortunately, the identification of **oxidized starches** in coatings on paper proved impossible. Better results were obtained when the coatings were isolated and then examd. by the IR-KBr technique. Under these conditions, by detg. the charac. extinction coeffs., **starches oxidized** with NaOCl could be detd. quantitatively; this could not be done in the case of dialdehyde starches. However, dialdehyde starches could be identified qualitatively in coatings by their charac. absorption band at 1736 cm.-1. 15 ref.

L120 ANSWER 55 OF 58 PAPERCHEM2 COPYRIGHT 2002 ELSEVIER ENGINEERING INFORMATION INC.

ACCESSION NUMBER: 67:2609 PAPERCHEM2
SYSTEM NUMBER: 000002609
DOCUMENT NUMBER: AB3802609
TITLE: PRODUCTION AND USE OF HYPOCHLORITE-**OXIDIZED STARCHES**
AUTHOR(S): Scallet, B. L.; Sowell, E. A.
SOURCE: Starch Chem. Technol. (Acad. Press), (1967) Vol. 2, pp. 237-51.
DOCUMENT TYPE: Journal
FILE SEGMENT: PAPERCHEM
LANGUAGE: UNAVAILABLE

AB The mfr. of hypochlorite-**oxidized starch** (historical notes, starting matls., prepn. of NaOCl solns., the starch-hypochlorite reaction), its characs. (phys., chem., and rheological props.), and applns. (in paper, textiles, laundry, finishing, building matls., gelatinized prods., and intermediates) are revd. 39 ref.

L120 ANSWER 56 OF 58 PAPERCHEM2 COPYRIGHT 2002 ELSEVIER ENGINEERING INFORMATION INC.

ACCESSION NUMBER: 67:3431 PAPERCHEM2
SYSTEM NUMBER: 000003431
DOCUMENT NUMBER: AB3803431
TITLE: PREPARATION OF WATER-SOLUBLE STARCH FOR SIZING

PURPOSES
AUTHOR(S): Ramaszeder, K.
SOURCE: Magyar Textiltech., (Feb., 1967) Vol. 19, no. 2, pp. 63-8. [Hung.].
DOCUMENT TYPE: Journal
FILE SEGMENT: PAPERCHEM
LANGUAGE: Hungarian
AB Potato and Indian corn starch sizes of good adhesive quality were prepd. by trmt. with KMnO4 or Ca hypochlorite and 2-hr. cooking in alk. or aq. medium. The permanganate procedure requires drying prior to milling, and the resulting prod. is inferior to the hypo-trd. starch size with regard to adhesive strength and leachability (water resistance). 13 ref.

L120 ANSWER 57 OF 58 PAPERCHEM2 COPYRIGHT 2002 ELSEVIER ENGINEERING INFORMATION INC.

ACCESSION NUMBER: 67:985 PAPERCHEM2
SYSTEM NUMBER: 000000985
DOCUMENT NUMBER: AB3800985
TITLE: USE OF STARCH SLURRIES IN PAPER MILLS
AUTHOR(S): O'Neill, B.
SOURCE: Appita, (Jan., 1967) Vol. 20, no. 4, xvii-xxii.
DOCUMENT TYPE: Journal
FILE SEGMENT: PAPERCHEM
LANGUAGE: UNAVAILABLE

AB In 1963, the paper mill of Wiggins Teape Shoalhaven Pty. Ltd. abandoned the use of pregelatinized starch as a beater additive and of a modified starch for size-press appln. in favor of a 30% raw wheat flour starch slurry supplied in tank lots from a nearby plant. The storage and handling of the slurry, fermentation problems, etc., are discussed. Emphasis is placed on methods for converting the slurry for use at the size-press. So far, enzyme conversion proved unsatisfactory, whereas NaOCl conversion gave good results both in the lab. and in the mill. The changeover led to substantial savings. Possible future devts. are mentioned. 2 ref.

L120 ANSWER 58 OF 58 WPIDS (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: 1970-41587R [23] WPIDS
TITLE: Cationic starch producing method.
DERWENT CLASS: D17
PATENT ASSIGNEE(S): (KON-I) KONISHI Y
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
JP 45016060	B		(197023)*		

PRIORITY APPLN. INFO: JP 1964-3378 19640124

AB JP 70016060 B UPAB: 19930831

The method comprises treating starch with water, oxidising it with bleaching powder or sodium hypochlorite, treating the mixt. with a cationic surface active agent to effect an addition reaction and gelatinising the prod. by heating at 60-100 degrees C.